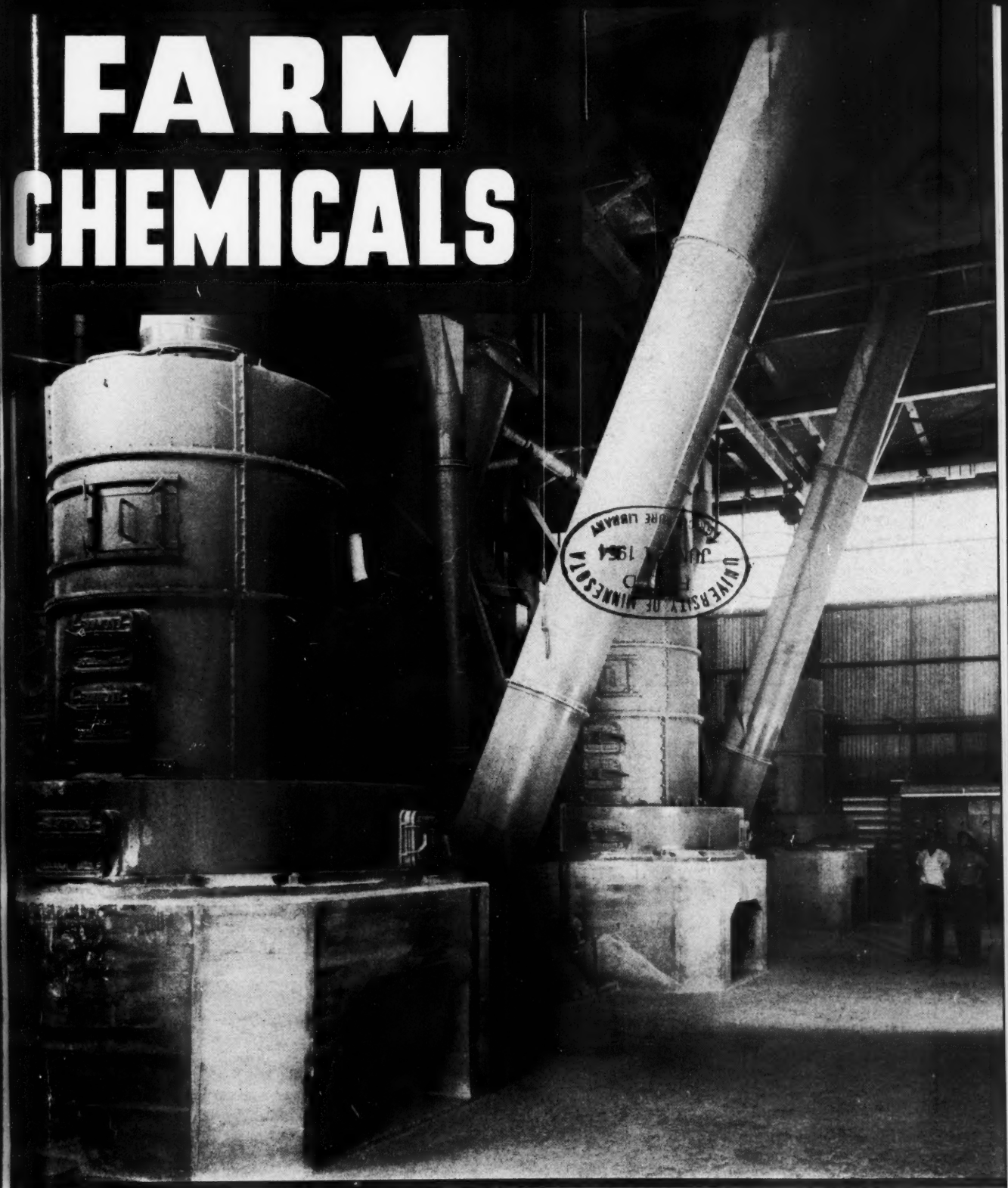
FARM CHEMICALS



trogen
lutions
ANA* and
RANA*)
Urea
oducts

ARCADIAN*
The American
Nitrate of Soda

A-N-L*
Nitrogen
Fertilizer

ARCADIAN*
12-12-12
Granulated Fertilizer

Sulphate of
Ammonia

Nitrogen Division
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Allied Chemical

NITROGEN DIVISION ALLIED CHEMICAL

ark of Allied Chemical & Dye Corporation

Richmond 19, Va. • Hopewell, Va. • South Point, Ohio • Atlanta 3, Ga. • Columbia 1, S. C. • San Francisco 3, Cal.

NOW . . . A GREAT NEW NITROGEN SOURCE

From a famous name in the farm world comes a valuable new product for farmers

NITROGEN . . . so essential in building farm profits . . . is now beginning to flow from DEERE & COMPANY'S new Grand River Chemical Division plant near Pryor, Oklahoma.

The new plant, in keeping with the company's time-honored policy of building only quality products, is of the most modern design in the world . . . giving rise to equally modern high analysis nitrogen products.

These nitrogen products are ANHYDROUS AMMONIA and UREA . . . both tops in the field of high analysis.

The urea fertilizer, VITREA® (pronounced Vi-tree-a) is guaranteed 45% nitrogen. To prevent caking and to assure a free and even flow, Vitrea is prilled into a bead-like shape and coated with a special conditioner.

For your nitrogen needs look to the name made famous by 117 years of quality products for use in agriculture.

VITREA®
45% NITROGEN

Grand River Chemical Division of

DEERE & COMPANY

GEN. & SALES OFFICES — TULSA, OKLA. • PLANT — PRYOR, OKLA.

Built to take it

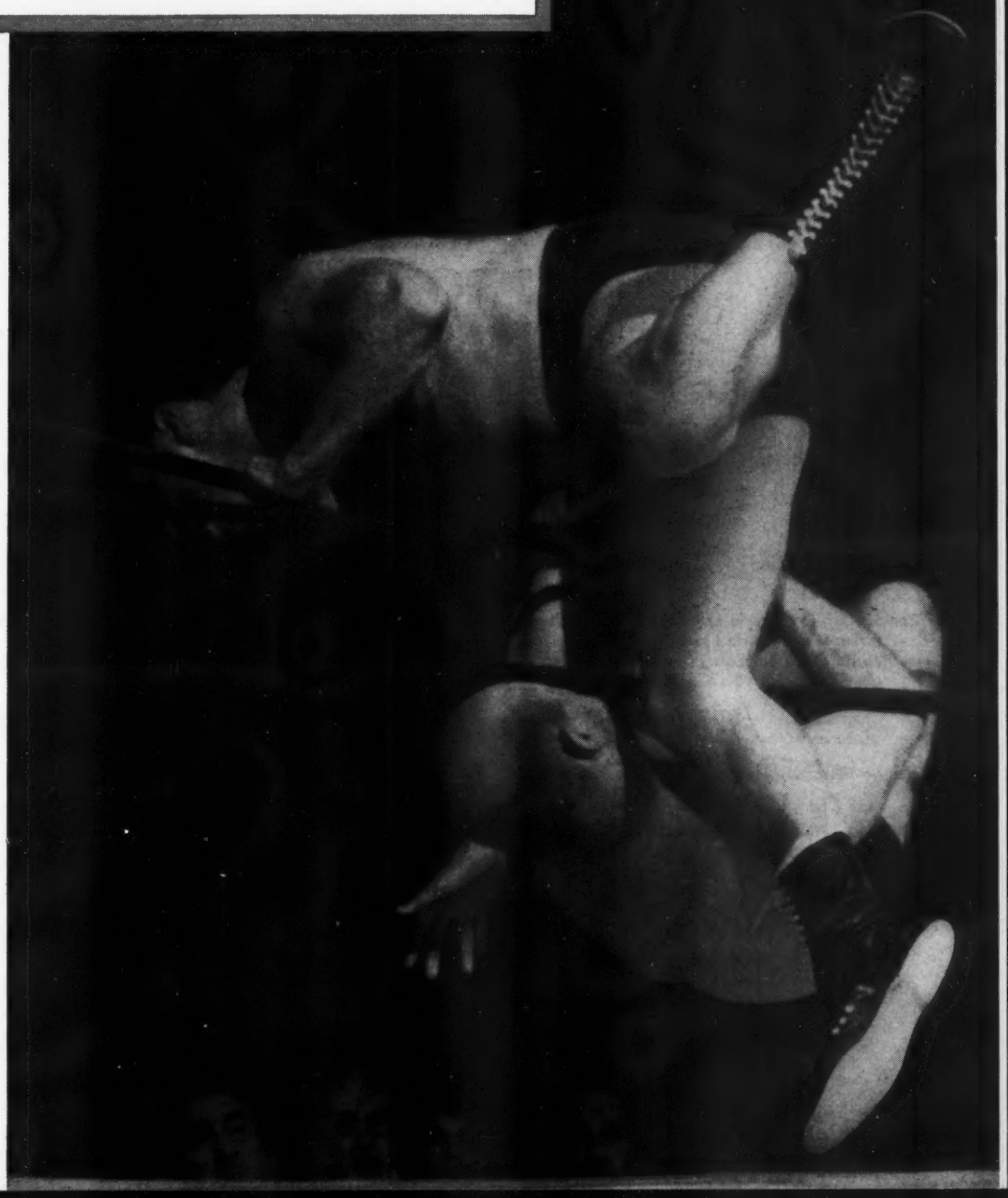
You have to contend with rough handling in shipping every day. Union Multiwall Bags have the built-in toughness to take constant bouncing and jouncing. They are made from heavy-duty Kraft we manufacture ourselves and are engineered to the exact needs of your own production and shipping departments.

UNION MULTIWALL BAGS

UNION BAG & PAPER CORPORATION

Woolworth Building, New York 7, N. Y.

TRADE MARK UNION



For Trona Potash as a simple or in mixes see *your local fertilizer dealer.* He has both Trona improved Muriate and Sulphate of Potash in stock now.

PRODUCED IN THE WEST— *TO GROW THE BEST*

Farm profit can be measured in fertilizer bags. The vital plant food elements you take from the soil in growing healthy, profitable crops *must be restored.* Every bag of Trona Muriate of Potash and Trona Sulphate of Potash in your mixed fertilizer is vital in building healthy plant tissue, bolstering crop resistance to drought and disease — and makes future bumper crops possible. That's why Potash—Trona Potash, produced in the west to grow the best—is your yardstick for measuring profit on your investment. Don't gamble! Make certain your crops are receiving plenty of health-giving, profit-building Potash by including TRONA POTASH in your fertilizer program.

American Potash & Chemical Corporation

Offices • 3030 West Sixth Street, Los Angeles 54, California

TRONA
INDUSTRIAL AND AGRICULTURAL CHEMICALS
ESTON CHEMICALS

Trade Mark AP&CC

Data has been prepared on the application of Trona Potash and how it benefits important western farm crops. You'll profit by sending for this information today.

SEE YOUR LOCAL FERTILIZER DEALER

AMERICAN POTASH & CHEMICAL CORPORATION
3030 West Sixth Street, Los Angeles 54, California

Please send information and bulletin on Trona Potash for high quality crops:

NAME_____

ADDRESS, P.O. BOX NUMBER_____

CITY_____ STATE_____

Farm Chemicals

Pioneer Journal of the Farm Chemicals Industry – Established 1894

Published Monthly by WARE BROS. COMPANY
317 NORTH BROAD STREET, PHILADELPHIA 7, PA.
Telephone MArket 7-3405

A magazine national in scope and circulation and devoted to manufacturers, mixers, and formulators of fertilizers and pesticides

Staff

SAM LEWIS VEITCH.....Publisher
A. A. WARE.....Editor
GEO. P. TEEL, JR.....Managing Editor
PHYLLIS L. GERHART.....Editorial Assistant
HELEN M. HAUSMAN.....Circulation Manager
K. F. WARE.....Advertising Manager

Advertising Representatives

Harold H. Short, Jr.
51 E. 42nd St., New York 17, N. Y...MUrray Hill 7-6669
Al Zilenziger
333 N. Michigan Ave., Chicago 1, Ill....FRanklin 2-7100
William Blair Smith
Russ Building, San Francisco 4, Cal....EXbrook 2-3723
Hughlett Hollyday Jr.
505 S. Alandele Ave., Los Angeles 36, Cal. WEbster 8-1201

BPA
Member Business Publications Audit

Subscription Rates

U. S., its possessions, Canada Cuba and Panama per year.....$6.00
Mexico and other foreign.....7.50
Single Copy......50
Back Numbers.....1.00
Acceptance under Section 34.64 P. L. & R., authorized.

Cover Story

Pictured are three Raymond roller mills used for grinding phosphate rock at Davison's new triple superphosphate plant near Bartow, Fla. The facilities are described on page 30.

Vol. 117 JUNE, 1954 No. 6

Contents

Industry News.....4
Company Briefs.....7
People.....10
Associations and Meetings.....11
Equipment and Supplies.....14
Washington Letter.....17
Bailey and Harms
IMC Opens Clarksville Plant.....21
APFC Convention Program.....22
NFA Convention Features Addresses by Benson, Cole.....26
Pesticide Developments.....28
Davison Triple Super Plant.....30
The Pesticide Situation, 1953-54.....31
Fertilizer Consumption in the United States, 1952-53.....35
Walter Scholl, Hilda M. Wallace and Esther I. Fox
Scarseth Featured at 2nd Annual California Conference.....55
Pest Reports.....57
Production.....60
Market Reports.....61
Texas City Plant Open.....63
Editorial—Solution for Surpluses.....64
Reader Service.....65
Buyers' Guide.....67

In this issue . . .

Open house at the new Clarksville, Tenn. plant of International Min. & Chem. Corp. was held in April. An estimated 350 people celebrated the official opening of this latest International unit which is briefly described on page 21.

Both June fertilizer conventions have a number of interesting features scheduled, including what should be three excellent panel discussions. APFC members will hear four experts discuss agricultural public relations while NFA delegates have a choice of discussions on fertilizer granulation or sales development. For the complete programs see page 22 for APFC and 26 for NFA.

Several notable pesticide developments were announced during the past month and are reviewed on pages 28-29.

Davison Chemical Corp. has placed in operation its new triple superphosphate plant at Bartow, Fla. Operation of the 200,000 ton unit is reviewed on page 30.

Fairly large overall supply, ample production capacity for major items and generally slow advance ordering more or less summarizes the USDA 1953-54 pesticide situation report prepared by H. H. Shepard. Turn to page 31 for highlights.

Fertilizer consumption during 1952-53 increased 4.4 per cent over the previous year, according to the final USDA figures. See page 35 for the beginning of the complete report with tables and diagrams as prepared by Walter Scholl, Hilda Wallace and Esther Fox.

The recent California Fertilizer Conference included as speakers Dr. George Scarseth, Ralph S. Waltz and Allen B. Lemmon. Notes on their remarks appear on page 55.

INDUSTRY News

Approve Grace-Davison Merger

J. P. Grace, Jr.
Grace President

M. G. Geiger
Davison President

At press time it was announced that stockholders of both companies had voted approval of the merger. Davison will operate as the Davison Chem. Co. Div. of W. R. Grace & Co., with headquarters at Baltimore, Md.

A merger of Davison Chemical Corp. into W. R. Grace & Co. has been approved by the boards of directors of both companies, and recommended for favorable consideration by stockholders of the two organizations.

Under the terms so approved, each share of Davison common stock will be exchanged for 1 4/10 shares of Grace common stock and each share of Davison preferred stock, $50 par value, will be exchanged for $50 in principal amount of 4 ¼ per cent Convertible Subordinate Debentures to be issued by Grace, plus $5 in cash.

Once issued, each debenture is convertible into 1 ½ shares of Grace common stock at any time prior to May 1, 1954 and thereafter into 1 35/100 shares of Grace common stock at any time prior to May 1, 1964. The debentures will mature on May 1, 1974 and will be retired through a sinking fund which commences in 1965.

The merger is subject to the approval of the stockholders of both companies. The Grace meeting was to be held May 12, and the Davison meeting on May 13, 1954.

Nitrogen Div. Expands Hopewell Facilities

Nitrogen division, Allied Chemical & Dye Corp., last month announced the expansion of its nitrogen plant at Hopewell, Va. resulting in increased production of anhydrous ammonia of 50,000 tons per year.

Ammonia capacity of the Hopewell plant was increased last year. The new project, involving changes in equipment and installation of some new facilities, will further expand ammonia capacity, as well as capacity for converting ammonia to nitrogen solutions.

Horace Bowker

Horace Bowker, well known throughout the fertilizer industry, died at his Lawrence, N. Y. home on May 25.

Bowker, retired chairman of the American Agr. Chem. Co. Executive committee, had served as president and board chairman of AAC, director and president of NFA and president of the Chemical Alliance, Inc.

Cut in Pest Control Spending Opposed

Industry representatives and state control agencies assailed the reduction in appropriations for insect control work of the Agriculture department for fiscal 1954 at hearings in May before the Senate Appropriations committee.

Appropriations for enforcement of the Federal Insecticide, Fungicide and Rodenticide Act were reduced from $587,600 to $510,837, and funds for the Insect Detection and Advisory Service were cut from $387,600 to $300,000. Opposition to both these cuts was raised by Joseph A. Noone, of the National Agricultural Chemicals Association.

"This act (Insecticide, Fungicide and Rodenticide) serves to keep from the market ineffective or dangerous products which if used by the grower might damage his crop, fail to control the insects, weeds or diseases which attack it, pose hazards to his health and well-being and generally constitute a public health as well as an economic problem," Noone asserted.

Speaking on the Insect Detection and Advisory Service fund cut, he declared, "For the forecasting service to best serve the growers of this country it is necessary that an adequate number of technically trained personnel be available in various parts of the country to observe insect infestation and report them to some central point and that there be a sufficient number of trained personnel there to coordinate the information and issue accurate reports promptly for the guidance of the growers."

Mo. Ammonia Works Leased by Hercules

Hercules Powder Co. has announced it will lease with an option to buy the government-owned Missouri Ordnance Works for $3,625,000.

As builder and first operator of the plant, Hercules had the option, which it is now exercising, of taking over the plant from the U. S. Army Corps of Engineers at the highest bid received by the government for the property.

The works consists of three high pressure anhydrous ammonia lines using natural gas as a raw material, and it has a capacity of approximately 42,000 tons of ammonia annually. Plant rehabilitation will begin immediately, Hercules reports.

The company expects that production of ammonia will begin within three months and capacity operation on the three lines will be reached within five months from the signing of the contract.

Endrin Approved for Tobacco Pests, Hoppers

Tobacco hornworms, tobacco budworms, fleahoppers and grasshoppers can now be stopped with very small dosages of endrin, an insecticide recently granted label acceptance by USDA for use against these pests, according to F. W. Hatch, manager of the Agricultural Chemicals division of Shell Chemical Corp.

In a liquid formulation or as a one per cent dust, .2 to .4 pound-per-acre dosages were reported adequate for protection of the growing tobacco plants. Studies have shown that endrin, at recommended dosages, will not leave harmful residues or affect the smoking quality of tobacco.

Endrin was introduced last year as a cotton insecticide. Agricultural research now under way indicates that in addition to cotton and tobacco, the material may soon play an important part in the control of many insects on a variety of crops throughout the nation, Shell states.

FOA Rejects Fert. Industry Complaint

The Foreign Operations Adminstration will not comply with the fertilizer industry's request that it limit its purchases of fertilizer for overseas programs to this country's manufacturers, according to recent reports. The agency pointed out that it has a mandate from Congress to procure commodities in whichever part of the free world they can be purchased at the cheapest competitive price. However, FOA was said to be considering policy changes which may aid producers who wish to compete with foreign manufacturers.

Superphosphate and ammonium sulfate producers who met with representatives of the Business and Defense Services Administration on Feb. 25 complained that they were constantly being outbid by foreign manufacturers and forecast severe unemployment in the second half of the year because of reduced rates of operation if the situation continues.

Following the conference, a 10 point program was submitted through the Commerce department to FOA, which the agency has said it is considering for revision of its procurement policy.

When FOA's budget for the 1955 fiscal year comes up before Congress, some review may be given to the agency's policy. More than one-third of its $3,500,000,000 budget is for Indo-China and the Far East Pacific.

Vote to Merge Mathieson-Olin

The boards of directors of Mathieson Chemical Corp. and Olin Industries, Inc., on May 10 voted unanimously to submit to their stockholders a proposal to merge the two companies. Special stockholders meetings will be held on June 29 to discuss the merger.

The announcement was made jointly by John M. Olin, president of Olin Industries, and Thomas S. Nichols, president and chairman of Mathieson. Name of the new company will be Olin Mathieson Chemical Corp. Following the merger Olin will become chairman of the board and Nichols will become president. John W. Hanes will be chairman of the Finance committee.

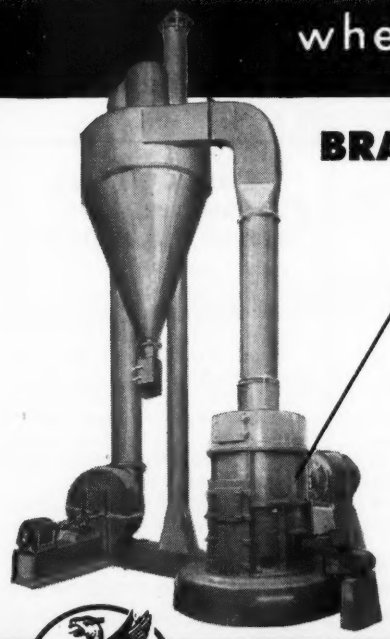
Based on 1953 figures, the combined corporation will have total assets of about $500 million and sales of over $500 million, including sales of non-consolidated subsidiaries and licensees.

When the merger becomes effective, each outstanding share of Mathieson preferred stock and each outstanding share of Olin preferred stock will be one share of Olin Mathieson $4.25 convertible preferred stock. Each outstanding share of common stock in the two companies will be one share of the merged companies' common stock.

A five per cent stock dividend on Mathieson common stock will be paid prior to the effective date when the merger is approved and carried out, Mathieson reported.

Both companies were founded in 1892, generally are of the same size and each has approximately 18,000 employees.

when *fine* grind is desired



BRADLEY PNEUMATIC HERCULES MILL

The ONLY pneumatic roller mill installed at floor level.

Designed and constructed for FINE grinding of limestone, phosphate rocks, insecticides, other similar materials . . . Bradley Pneumatic Hercules Mill produces a uniform grind from 20 to 325 mesh. Floor level installation provides easy accessibility . . . lowest installation and maintenance cost. Durable, non-clogging vibratory feeder for dependable, worry-free operation . . . even on materials with some amount of moisture.

For complete information, write for Catalog No. 62

Bradley PULVERIZER CO.

LONDON ALLENTOWN, PENNA. BOSTON

Dutch Representatives Tour Southern Nitrolime Port Facilities

Ben J. Tarbutton, pres., Central of Ga. Ry.; Dr. R. L. Beaukenkamp; J. Everett Kunzmann; J. Boutlivizn; John W. Middleton, president, Smith & Kelly Co.; Albert B. Baker, Jr. and Albert B. Baker, Sr., Bradley & Baker.

W. E. Hendricks, Cavanaugh Assoc.; H. C. White, Central general freight traffic mgr.; R. R. Mehrhof, Bradley & Baker; R. A. Hoyle, asst. freight traffic mgr. and J. L. McMillan, freight agent in charge, Central terminals.

A new method of unloading, bagging and distributing imported Nitrolime fertilizer at dockside was the object of an intensive tour by Dutch government representatives and business leaders this week at the Savannah, Ga., Charleston, S. C. and Wilmington, N. C., port terminals.

The agricultural attache of the Netherlands Embassy in Washington, Dr. R. L. Beukenkamp, represented the Dutch government in viewing these terminal operations in which Nitrolime, imported in bulk, is unloaded, stored and packed in 100-lb. sacks at dockside and transported to waiting railroad cars and trucks for distribution.

Accompanying Dr. Beukenkamp were Jan M. Boudewijn, sales representative of Centraal Stikstof Verkoopkantoor N. V., selling agents of the Netherlands nitrogen producers; J. E. Kunzmann, vice president of Chase National Bank, New York; Albert B. Baker and Albert B. Baker Jr., partners in Bradley & Baker, United States distributors of Nitrolime.

Nitrogen Quick Test Developed by Berger

A quick test to measure the nitrogen needed as sidedressing in growing corn has been developed by Kermit Berger of the University of Wisconsin.

In testing, colors of lower leaves on knee to hip-high corn are compared with those on the test card, and the corn leaf is matched to the nearest color on the chart. Person making the test then refers to a key on the back of the chart which tells the exact amount of any of the common fertilizers (ammonium nitrate, anhydrous ammonia, urea, ammonium sulfate, ammonium nitrate-lime or sodium nitrate) which should be used on the field as sidedressing.

The Berger Nitrogen Test Card is available from Science Enterprises, P. O. Box 254, Madison, Wisc., for 25 cents Quantity prices are available.

Coronet Safety Booklet

A *Safety Rule Book* for its employees has been published by Coronet Phosphate Co., a division of Smith-Douglass Co., "after long and detailed negotiations with the Labor Union (International Chemical Workers Union, Local 37, AF of L)," according to Vernon S. Gornto, safety director of the parent company. The company believes this is the first printed rule book to be issued by the phosphate mining industry, Gornto added.

Interested persons may secure a copy from Smith-Douglass Co., Norfolk 1, Va.

Feb. Safety Contest

Results of the National Safety Council's Fertilizer section safety contest in February show 149 or 89 per cent of the 160 contestants reporting perfect records for the month.

Inquiry into Red Potash Dumping Charges Ordered by Humphrey

An investigation of potash shipments from East Germany has been reported ordered by Secretary of the Treasury Humphrey to see whether U. S. industry is being "injured."

Humphrey acted upon complaints from six potash companies—American Potash & Chemical Corp., Duval Sulphur & Potash Co., International Minerals & Chemical Corp., Potash Co. of America, Southwest Potash Corp. and U. S. Potash Co.—which stated that the Russian satellite is dumping potash on the market and thereby threatening serious injury to domestic producers.

If the investigation, which is being made under provisions of the Anti-Dumping Act of 1921, shows that this country's industry is either being injured or is likely to be injured, Humphrey can direct the Customs Bureau to increase the duty on incoming shipments, thereby bringing the foreign price into line with domestic prices.

Complaining companies insist that "fair value" should be measured in terms of the price East Germany is charging in other world markets. Price charged on shipments to England is $39 a ton, plus freight, and to Denmark is $30.60, plus freight, while the selling price at U. S. ports is only $24 a ton, plus freight, the complaint states. Average selling price from domestic producers is approximately $37 a ton.

Buyers, knowing that this cheaper price is available, have indicated they will slow down ordering. "The industry will be hard hit because it won't be able to plan its production schedule for the year," according to one industry member who added, "even if we should get heavy orders late in the year it would be practically impossible to step up production to meet them."

Third Safety Award For Farm Chemicals

FARM CHEMICALS has been voted the National Safety Council's Public Interest Award for the third consecutive year.

Made annually to public information media for "exceptional service to safety," the award was presented to George P. Teel, Jr., managing editor, at a luncheon meeting held by the Philadelphia Safety Council on May 26.

In his letter of congratulations to FARM CHEMICALS, Ned H. Dearborn, council president, said, "We here at the council have been well aware of all you have been doing for safety, and we are delighted that the judges agreed.

"I am sure you feel, as we do, that there is another, less tangible result of your safety efforts—the knowledge that you have helped prevent many accidents."

Company Briefs

A new German emulsifier company has been formed jointly by the **Atlas Powder Co.** and Th. Goldschmidt, G.-G., of Essen. Beginning July 1, the new **Atlas-Goldschmidt,** G.m.b.H., will begin a program of product research and development and will market surfactants and emulsifiers throughout Europe and other parts of the world.

James R. Frorer, Atlas vice president of international operations, laid the groundwork for the venture. Dr. Hans Dohse and Heinz B. Tillman have been appointed managers of the German affiliate, with headquarters in Essen.

First quarter net income for **Atlas Powder Co.** was $657,533 or $1.08 per common share, an increase of 13 per cent over the previous corresponding period. At the stockholder's annual meeting, 12 Atlas directors were re-elected.

Consolidated net earnings of **Commercial Solvents Corp.** for the first quarter of 1954 were $626,634, equal to 24 cents per share. Sales totaled $11,989,382.

Coronet Phosphate Co. employees celebrated at a company sponsored barbecue the completion of 180 days without a lost time accident. The company holds a barbecue or party for every such period worked and says that results and enthusiasm generated by such a program are surprising.

An offer by **Fisons, Ltd.** to acquire the ordinary share capital of Pest Control, Ltd. has been accepted by holders of more than 98 per cent of the issued stock. The board of the latter company has been revamped with F. G. C. Fison as new chairman and A. Wormald, managing director.

First quarter net income of **Freeport Sulphur Co.** has been set at $1,959,892, or 82 cents per common share, an increase over the 1953 period. A regular quarterly dividend of 62½ cents was declared at a meeting of the directors.

The $2.5 million Baton Rouge, La., sulfuric acid plant of **General Chemical** division has gone on stream. This contact process unit is the seventh major expansion at the Louisiana works since 1945 and is the 20th acid plant to be operated by General Chem. in the U.S. or Canada.

Consolidated net income during 1953 for **W. R. Grace & Co.** reached $10,959,077, an increase of 39 per cent over 1952 earnings. This was $3.76 per share of common stock.

Ammonia and urea units at the Memphis plant of **Grace Chemical Co.** are expected to go into production this autumn, according to an item in the annual report of W. R. Grace & Co.

A new Feed Ingredients Sales department has been created within the Phosphate Chemicals division, **International Minerals & Chemical Corp.** Gladwin A. Read has been named manager of sales development and John K. Westberg is the manager of field sales. Read is former sales manager of the Feed Phosphates department and Westberg had been special product sales manager of the Amino Products division.

Koppers Co., Inc. has purchased the American Lumber & Treating Co. and will complete the deal by an exchange of Koppers common stock for shares of AL&T. Management of the organization will be integrated with the headquarters of Koppers Wood Preserving division.

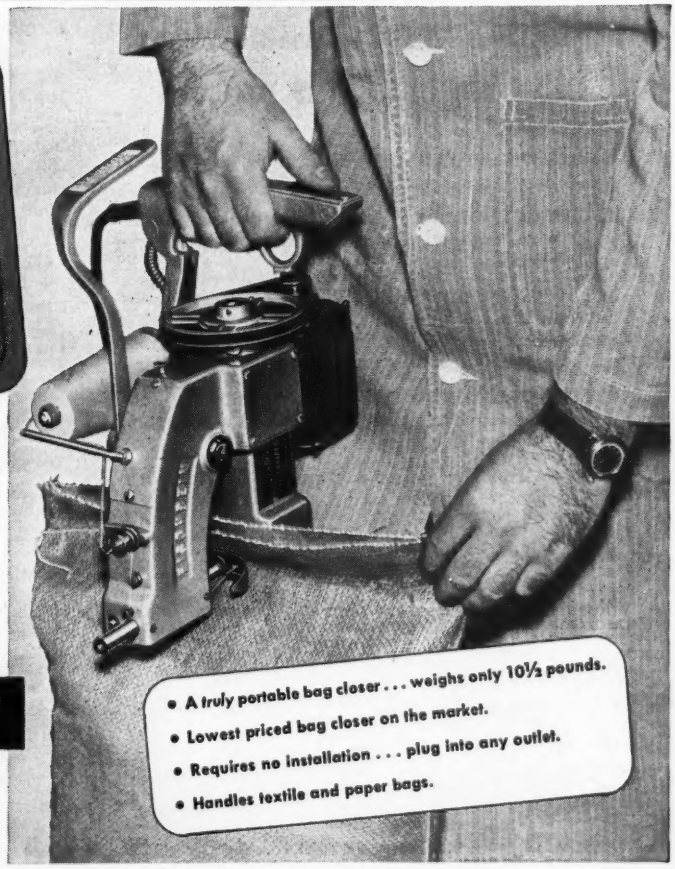
No immediate changes are planned in production or organization of AL&T plants and the present policy in regard to licensing the use of patented wood preservatives will be continued.

All members of the **Lion Oil Co.** board of directors were re-elected at a recent annual meeting of stockholders. Chairman T. H. Barton stated that the new Lion chemical plant near New Orleans should be completed before the end of the current quarter.

Lion's net income for the first quarter has been set at $3,468,610 or $1.12 per share, an increase of 22 per cent over the corresponding 1953 period. T. M. Martin, Lion president reports that sales revenue from the El Dorado chemical plant was the highest of any previous quarter

Earnings of **Mathieson Chemical Corp.** for the first three months were $4,753,819 or 83 cents per share. Sales were over $65.5 million, a gain of 8.3 per cent over the 1953 period.

FISCHBEIN
Portable
BAG CLOSER


• A truly portable bag closer . . . weighs only 10½ pounds.
• Lowest priced bag closer on the market.
• Requires no installation . . . plug into any outlet.
• Handles textile and paper bags.

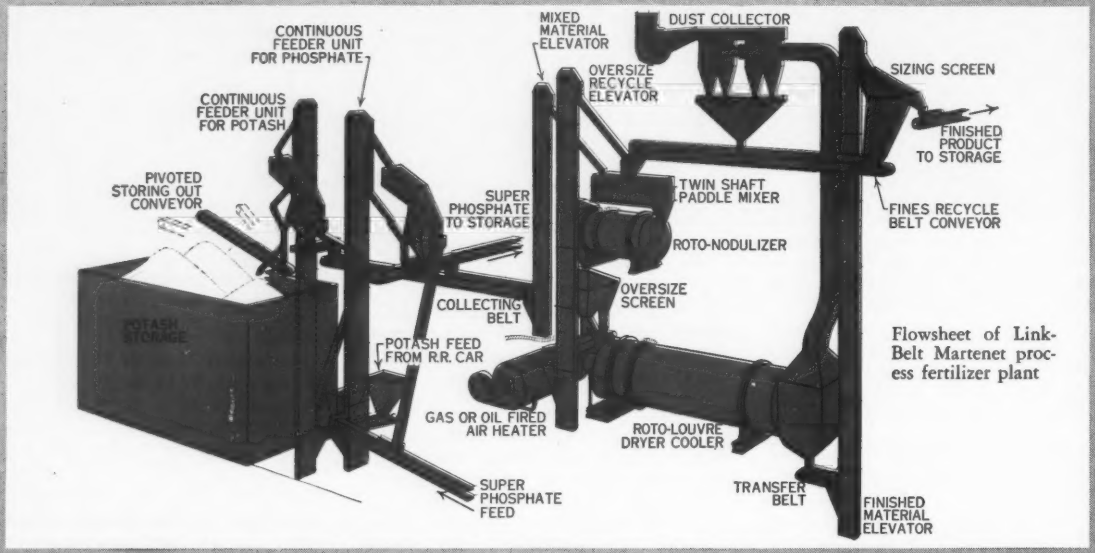
Thoroughly proved by thousands of users all over the world to be practical and efficient under varying conditions for constant or occasional use in large or small plants.

Address inquiries to:

DAVE FISCHBEIN COMPANY
Industrial Sewing Machinery
Dept. 9D, 38 Glenwood Avenue
Minneapolis 3, Minnesota

THE LINK-BELT MARTENET PROCESS

. . . for better fertilizer at lower cost!



Flowsheet of Link-Belt Martenet process fertilizer plant

Here are the outstanding advantages of this process

1. USES PRESENT FACILITIES. Many of the present facilities in your plant can be converted.

2. LOW COST INSTALLATION. Initial capital investment is less than with other methods for producing high-analysis fertilizer.

3. LOW RAW MATERIAL COST. The Martenet process uses only low cost nitrogen materials such as anhydrous ammonia and/or ammonium nitrate solution. Savings as high as $12.00 per ton of raw material can be realized.

4. LOW OPERATING COSTS. This automatically controlled process reduces plant manpower to a minimum, keeps power and fuel costs reasonable.

5. VERSATILE. The process will produce all ratios in a very high degree of plant food concentration.

6. GRANULAR—HOMOGENEOUS PRODUCT. The finished product is granular, homogeneous and free-flowing—can be stored for indefinite periods in bulk or bags without fear of cementing particles.

The ability to supply a complete "Martenet Process" installation is another example of the unique "turnkey" service Link-Belt offers you. Link-Belt experience includes dry-mix, superphosphate, nitrophosphate, ammonium nitrate, ammonium sulphate, urea, granulation and other plants.

For an analysis of your requirements, get in touch with the Link-Belt office near you. Or write today for your copy of Book 2459.

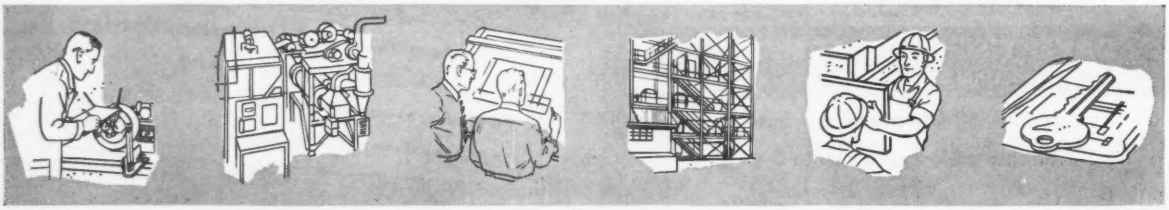
LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Sydney; South Africa, Springs. Representatives Throughout the World. 13.540

LINK-BELT

CONVEYING AND PROCESSING EQUIPMENT

Here's what Link-Belt offers you under a single-contract responsibility

MODERN LABORATORIES | PILOT PLANT AND TESTING STATION | EXPERIENCED ENGINEERING | QUALITY EQUIPMENT | SKILLED ERECTION CREWS | SATISFACTORY PERFORMANCE



A recent fire completely destroyed the Pensacola, Fla. plant of the **Merchants Fertilizer and Phosphate Co.**

At the annual stockholders' meeting of **Michigan Chemical Corp.** all members of the board of directors were re-elected.

Mississippi River Fuel Corp. is reported planning a 200 ton/day ammonia plant for the manufacture of anhydrous ammonia, nitric acid and ammonium nitrate solutions. Estimated cost of the plant, to be located on a 4,500 acre tract of land on the Mississippi river, is $15 million.

An ammonia certificate of necessity has been cancelled by **Monsanto Chemical Co.**

First quarter net earnings of **National Distillers Products Corp.** and subsidiaries totaled $2,994,596, 29 cents per share. The board of directors declared a quarterly dividend of 25 cents on common stock payable on June 1.

Net profit for **Phillips Petroleum Co.** and subsidiaries for the first quarter was $19,162,400, $1.31 per share. This was a gain of eight per cent over the 1953 period.

A 13 per cent sales decline and a 25 per cent drop in income was reported for the first quarter by **Pittsburgh Plate Glass Co.** Net income was $7,179,978, or 79 cents per share, and net sales were $98,126,720.

Spencer Chemical Co. has authorized a $1,750,000 expansion program to add nitric acid facilities and a Spensol plant to the company's Henderson, Ky., works. Present plans provide for transferring to Henderson the Spensol plant formerly operated by Spencer at Charleston, Ind. The acid facilities will be entirely new.

First quarter earnings of **Stauffer Chemical Co.** have been set at $1,124,000, 48 cents per share. Both sales ($18,076,000) and earnings were up about 3.3 per cent above the 1953 period.

The Chicago Museum of Science & Industry will have a new exhibit in June, "Food for Life," a public service contribution by **Swift & Co.** It will portray the range of man's knowledge of foods for plants, animals and humans, emphasizing good nutrition.

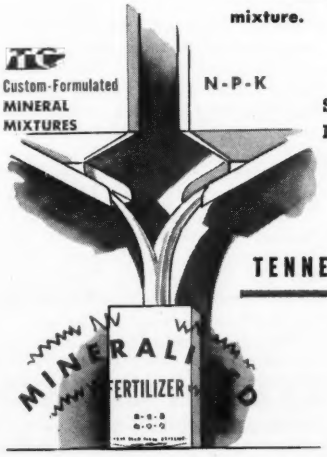
The role of soil, plants and livestock in providing proper human foods will be explained along with the story of food processing and distribution.

Core drilling for sulfur has been started by **Texas International Sulphur Co.** on property in the Isthmus of Tehuantepec, Vera Cruz, Mexico.

Universal Detergents, Inc. has appointed Philipp Brothers Chemicals, Inc. as exclusive export sales agents. The Philipp organization will also continue distribution of Udet F surfactant in the eastern U.S.

IT'S AS EASY AS SWEETENING YOUR COFFEE!

It is as easy to make a mineralized fertilizer as it is to put sugar in your coffee. Tennessee Corporation will custom-mix any combination of minerals to your own specifications. Thus there is only ONE ingredient to add to your regular fertilizer formula for a completely balanced plant food. It requires no additional labor or mixing facilities, since TC Mineral Mixtures come to your plant—in bulk or bag—already carefully mixed in controlled amounts of soluble and readily available forms of Copper, Manganese, Iron, Zinc, Magnesium, and Boron. Cut down on multiple purchasing, raw material costs, and handling by mineralizing with a TC custom-formulated mineral mixture.



Samples, Specifications and Detailed Information on Request.

TENNESSEE TC CORPORATION

617-29 Grant Building, Atlanta, Georgia

People

New director of sales development for **American Potash & Chem. Corp.** is Dr. A. J. Dirksen. He will be responsible for a sales development and market research program under the direction of D. S. Dinsoor, vice president in charge of research and development. Dirksen was formerly eastern representative for the Sales Development department.

Dixon C. Van Winkle has been named by **Atlas Powder Co.** manager of the Chemical department's New York district sales office, succeeding L. G. Parkinson. He joined Atlas in 1952 as a special sales assistant and prior to joining Atlas served with the Velsicol Corp. and as eastern manager of the Julius Hyman Co.

Three **Bemis Bro. Bag Co.** executives, each with 50 years of company service, were honored recently by a group of Bemis officers and executives. Those cited were C. F. Scott, member of the board of directors; E. R. Baily, San Francisco manager and R. H. Brown, manager of New Orleans plant until 1948 and special representative until his retirement in March.

New vice-president of **Brayton Chemicals, Inc.,** Burlington, Iowa, is Charles E. White, a veteran of the food field and past president of the National committee of Food Sanitarians.

White

White spent 15 years with Kraft Foods in research and quality control work, served as a food inspector in the army quartermaster corps and was instrumental in helping to form the food industry's Liaison committee which acts in an advisory capacity to the USDA. In his new post, he will continue to work primarily with the food industry.

Died: Robert W. Sharwood, director and vice president of **Canadian Industries, Ltd.**

The technical director of **Columbia-Southern Chem. Corp.,** Joseph A. Neubauer, has been elected to membership on the board of directors. David G. Hill, vice president in charge of glass manufacture for Pittsburgh Plate Glass Co., has also been made a director, filling a vacancy created by the retirement of Emmet D. Griffin.

Neubauer

Neubauer's election provides representation on the board for the firm's rapidly expanding technical operations.

W. Ward Jackson has been named a vice president of **Commercial Solvents Corp.** and will direct the company's Petrochemicals division. He announced the appointment of Frank E. Maple to fill his former position as general manager of the Industrial Chemicals Sales department.

Latest member of **Davison Chemical Corp.'s** research and development staff is Dr. Bernard Rudner. He was formerly with General Aniline & Film Corp.

Directors of **Diamond Alkali Co.** have elected Raymond F. Evans chairman of the board and John A. Sargent president of the company. At a recent stockholders meeting, all 10 directors were re-elected and all other officers renamed to their present posts. Evans was formerly company president and Sargent, executive vice president.

Promotions involving three persons in **Fulton Bag & Cotton Mills'** Kansas City plant have been announced. Al J. Reinberg is now assistant manager; Harold C. Forrester, production manager and J. R. Jones, office manager.

Hercules Powder Co. has named Joseph B. Talley manager of the Missouri Ammonia Works, Louisiana, Mo. Frank E. deVry has been appointed assistant manager.

Norman L. McLeod replaces Talley as works manager at Bacchus, Utah, and John E. Greer has been made assistant works manager at Kenvil, N. J., replacing McLeod.

Other assignments at the new Missouri Ammonia Works include Gene L. Woodfield, works engineer, and Lewis J. Vetter, chief clerk.

Dr. M. B. Gillis has been made manager of research in organic and biological sciences, Research division, **International Minerals & Chem. Corp.,** replacing Dr. M. J.Blish who retires in June.

Leonard T. Murphy has been elected treasurer of **Jefferson Chemical Co.** replacing G. C. Walker. He was formerly assistant treasurer of the company.

Personnel changes in the **Koppers Co.** Research department have been announced. They include Dr. T. E. Robbins, assistant manager, laboratory section; R. S. Detrick, assistant manager, laboratory branch at Verona and Dr. H. E. Tiefenthal, group leader. Dr. C. F. Fryling will devote full time to pioneering research in new fields.

Two new West Coast sales managers have been appointed by **Link-Belt Co.,** Rodney F. Coltart for the Central Pacific division with headquarters at the San Francisco plant, and Benjamin M. Prestholt for the Southern Pacific division, headquartered at the Los Angeles plant.

Alan S. Evans, Jr. has been elected vice president in charge of sales for **Neville Chemical Co.** Since 1942, Evans had been associated with the Coal Chemicals division, Pittsburgh Coke & Chem. Co., most recently as manager of the division.

Dr. C. O. Eddy has been appointed manager of the Development department and Dr. Oscar H. Johnson, director of research of the **Niagara Chemical division,** Food Machinery & Chem. Corp. The appointments coincided with announcement of an accelerated research and development program planned by Niagara Chem.

Dr. Eddy has been research director since 1944 and, prior to his new appointment, Dr. Johnson was coordinator of agricultural chemical development between the Niagara Chem. and Westvaco Chem. divisions.

Died: Albert W. Terry, manager of export sales, **Nitrogen division,** New York City. His career with Allied Chem. & Dye began as a Barrett division clerk about 27 years ago.

Former Purdue extension agronomist, Howard R. Lathrope, has been named Midwest agronomist for the **Nitrogen Division** Allied Chem. & Dye Corp.

Lathrope

Widely known throughout the Midwest for his work in introducing new methods of improved crop production, Lathrope is credited with improving farming practices and crop yields on a broad scale throughout Indiana. He will headquarter at the division's Indianapolis, Ind., office.

Lathrope has also served as a county agent in Wisconsin and taught vocational agriculture in that state.

A number of appointments have been announced by **Pennsylvania Salt Mfg. Co.** during the past month. Two new vice presidents, Dr. Wm. A. LaLande, Jr. and Edward F. Beale, were elected by the board of directors and the latter as company treasurer.

Other new officers include Eugene J. Harrington, Jr., who succeeds Beale as secretary and continues as assistant treasurer, and Frederick J. Emmenegger, who was named controller. Stanley L. MacMillan and R. Visscher Millar were re-elected assistant treasurers.

Additions to the staff of the Chemical Specialties division include Paul C. Hurley, manager of advertising; E. S. Graverich, technical director and Richard O. White, production manager.

Henry Avery has been made manager of the Coal Chemicals division, **Pittsburgh Coke & Chem. Co.,** replacing Alan S. Evans, who resigned to join Neville Chemical Co. Avery was formerly manager of the Plasticizer division and will continue to carry these responsibilities.

The United States delegation to the Second International Conference of Manufacturers includes Jack B. Snyder, president of **Snyder Chem. Co.,** Topeka, Kan. The group was scheduled to meet in Paris on May 23 for the opening of the three day conference.

The board of directors of **Stauffer Chemical Co.** have elected Christian de Guigne to a new position as chairman of the board. De Guigne had been president for the past eight years.

de Guigne

Former executive vice president and general manager, Hans Stauffer, was elected president; and John Stauffer, vice president and secretary, has taken on the added responsibilities of chairman of the new Executive committee.

R. C. Wheeler was re-elected vice president and Christian de Dampierre, treasurer. New controller is James W. Kettle, formerly associated with U. S. Steel Corp. All other officers were re-elected to the positions they formerly held.

Died: Bertram A. Tunnell, vice president of **F. W. Tunnell & Co., Inc.**, Philadelphia, on May 4.

Two changes have been announced in the **Union Bag & Paper Corp.** Multiwall Bag Sales division. Paul K. McKinney, multiwall sales representative, has been transferred from Houston to Kansas City with a territory including Oklahoma and parts of Kansas, Arkansas and Missouri. D. Leon Williams, formerly of New York, will be multiwall sales representative for Texas with headquarters at Houston.

Wm. J. Gehweiler has joined the Specialties department of **R. T. Vanderbilt Co.** where his activities will be centered on technical sales and development of agricultural diluents and adjuvants.

Gehweiler

As a graduate assistant at North Carolina State, Gehweiler participated in research problems involving tobacco insect pests and possible insecticide imparted off-flavors in tobacco. He also worked with the BEPQ White Fringed Beetle Control Project.

Velsicol Corp. has named William J. Woodman sales representative for the midwest area, with headquarters in the firm's general offices in Chicago.

Woodman

Prior to joining Velsicol, Woodman was active in various scientific and pest control associations in the midwest and has served as a consultant for several Wisconsin food processing firms. He also worked on fly repellents and mosquito control at the University of Wisc.

Associations & Meetings

Northwest Meet Scheduled

The fifth annual Pacific Northwest Fertilizer conference has been scheduled for July 20-22 at Klamath Falls, Ore., according to word received from Leon S. Jackson, secretary of the group.

Speakers for the affair will include J. C. Rinehart, Albert Ulrich and J. F. Reed.

Ohio Pest Institute Tour

J. D. Wilson, secretary of the Ohio Pesticide Institute, has announced that the 1954 summer tour of the group will be held on Aug. 10-12, beginning at Wooster and finishing in Northwestern Ohio.

Plot inspection will start on the 10th at Wooster and continue there through the morning of the 11th. Further plot inspections will be held on the 12th in the Toledo area and at the Ohio Muck Experiment Station at Celeryville.

A dinner commemoration the entomology centennial will be held on the evening of the 10th, and the afternoon of the 11th will be devoted to golf and social activities at a Sandusky country club.

SAVE MONEY ON YOUR LOADING DOCK!

POWER-CURVE LOADER CUTS COSTS

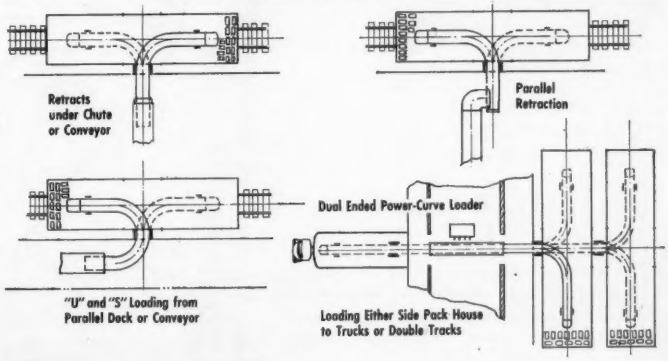
This Power-Curve Loader curves in any direction while under power. Swing it left or right, up or down. Conveys bags around corners, into boxcars or trucks.

Eliminates hand trucking; reduces loading crews to 1 or 2 men, for 12 to 30 bags per minute.

- Self-propelled
- Self-retracting
- Reversible

"POWER AROUND THE CURVE — WHERE YOU NEED IT."

MADE ANY LENGTH OR HEIGHT: FITS ANY LOADING SITUATION


Retracts under Chute or Conveyor
Parallel Retraction
Dual Ended Power-Curve Loader
"U" and "S" Loading from Parallel Dock or Conveyor
Loading Either Side Pack House to Trucks or Double Tracks

WRITE FOR BULLETIN NO. 50

We offer no-obligation engineering service for your specific bag handling problem . . . Car Loaders, Conveyors, Bag Flatteners, Elevators.

POWER-CURVE CONVEYOR CO.

2185 SOUTH JASON STREET DENVER 19, COLORADO

See how
BUTLER
gives you...

TIGHT PHOSPHATE STORAGE

in BUTLER steel phosphate tanks

Learn how you are assured season after season of phosphate-tight storage when you use Butler bolted steel phosphate tanks. The Butler representative in your area is listed on the opposite page . . . call him today. He'll also show you how these tanks are specifically designed for the storage of rock phosphate, super phosphate, triple phosphate, potash, lime and similar fertilizers. Heavy-gauge steel sections, sealed and bolted firmly for these powder-fine materials, give Butler tanks strength for full-capacity loads and high winds.

See how you can switch from bag to bulk rock phosphate storage...cut handling costs and add new profits to your operations. See, too, how you can buy at lower bulk phosphate price . . . stock ahead for rush seasons!

Call your nearest Butler representative right away. Learn how Butler bolted steel phosphate tanks will help you make more money next year.

T. and O. Rock Phosphate Company,
Sedalia, Missouri

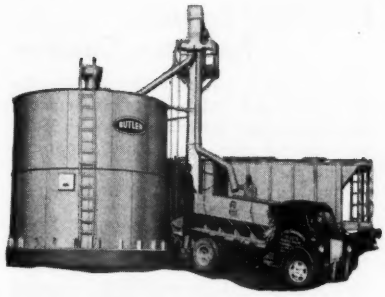
BUTLER MANUFACTURING COMPANY

For more details by mail write office nearest you:
7455 East 13th Street, Kansas City 26, Missouri
955 Sixth Avenue, S.E., Minneapolis 14, Minnesota
1055 Avenue W, Ensley, Birmingham 8, Alabama
Dept. 55, Richmond, California

BUTLER® STEEL PRODUCTS

Manufacturers of Oil Equipment
Steel Buildings • Farm Equipment
Cleaners Equipment • Special Products

Factories located in Kansas City, Mo.
Galesburg, Ill. • Richmond, Calif.
Birmingham, Ala. • Minneapolis, Minn.



Where to call your

BUTLER representative for Bolted Steel Tank Information

ALABAMA, GEORGIA: W. S. Manasco
8802 West Blvd., Birmingham, Alabama. Tel: 9-3917

ARKANSAS: Hugh J. Taylor
1409 S. Oak St., Little Rock, Ark. Tel: Mohawk 6-5376

CALIFORNIA: C. O. Wiand
6412 Riverton, N. Hollywood, Calif. Tel: Sunset 1-0895

IDAHO: Vernon H. Sisco
1207 Arcadia Street, Boise, Idaho. Tel: 3-9961

ILLINOIS: Harold L. Hoppe
1316A West Gift Avenue
c/o University Villas, Peoria 5, Illinois. Tel: 5-8583
R. F. Lambert, Room 1110
624 S. Michigan, Chicago 5, Ill. Tel: WEbster 9-5035

INDIANA: E. C. Komm
P. O. Box 262, Noblesville, Indiana. Tel: 41F31

IOWA: D. Allan Ryals
645 39th Street, Des Moines, Iowa. Tel: 78489

KANSAS, COLORADO: Warren R. Jaillite, Jr.
111 North Main Street, Quenemo, Kansas. Tel: 105

LOUISIANA, MISSISSIPPI: Frank J. Kearny
2414 Octavia, New Orleans, La. Tel: University 1839

MICHIGAN: J. E. Stevens
303 Crossman Street, Williamston, Michigan. Tel: 80M
Robert C. Babcock
308 Killarney Beach, Bay City, Michigan. Tel: 7-3485

MINNESOTA: Norman L. Kolbak
2428 Jefferson, Duluth, Minnesota. Tel: 3-7584
William A. Garrison
Route No. 3, Wayzata, Minnesota. Tel: 402-J

MISSOURI: Harry B. Bolte
2 Dorothy Street (Wires), P. O. Box 637 (Mail)
Columbia, Missouri. Tel: 24071
Robert M. Hutchison, R. R. #1, Box 13
Parkville, Missouri. Tel: 4192
Charles F. Neff
Whitehall Apartments, 323 Brush Creek,
Kansas City, Missouri. Tel: Logan 1088
Robert H. Peters
516 East 29th Street, North Kansas City, Mo.
Tel: Baltimore 9039

MONTANA, WYOMING: R. P. Rodemyer
502 3rd Avenue, Laurel, Montana. Tel: 691

NEBRASKA: James J. Lauffer
226 East Third, Bonner Springs, Kansas. Tel: 94

NORTH CAROLINA, SOUTH CAROLINA: M. T. Harris
4805 Woodhaven Drive, Charlotte, N. C. Tel: 3-1395

NORTH DAKOTA: Richard R. Indergard
308 N. 8th Street, Montevideo, Minnesota. Tel: 9348

OKLAHOMA: L. H. Heiliger
515 N. E. Sixth Street, Bethany, Oklahoma
Tel: Oklahoma City, Whitney 9-4855

SOUTH DAKOTA: C. A. Anderson
1901 S. Norton, Sioux Falls, South Dakota. Tel: 6740

TENNESSEE, KENTUCKY: George E. Gale
1811 Acklen Ave., Nashville, Tennessee. Tel. 7-4770J

TEXAS: Elmer V. Ledin
4510 Mt. Vernon, Houston, Texas. Tel: Lynchburg 7079
James T. Osborn
1613 Lakeside Dr., Garland, Texas. Tel: Garland 2-8793

WISCONSIN: Harold J. Kramer
4206 Bainbridge St., Madison, Wisconsin. Tel: 4-1737

WASHINGTON, D. C.: F. E. Isemann
613 Cafritz Building, 1625 Eye Street, N. W.
Washington 6, D. C. Tel: Republic 7-7993

WASHINGTON, OREGON: C. L. Miller
4200 11th Ave., N.E., Seattle, Wash. Tel: Melrose 5716

BUTLER MANUFACTURING COMPANY

Baltimore Safety Meet

F. Wayne High, manager of operations, The Baugh Chemical Co., was chairman of the Fertilizer Plant Safety section for the Governor's Safety-Health conference in Baltimore, Md., May 6-7. Vice-chairman was A. B. Pettit, supervisor, industrial health and safety, The Davison Chemical Corp.

Topics and speakers scheduled included "Developing Interest in Safety Through Demonstrations," Paul A. Grundman, safety engineer, Armco Steel Corp.; "A Kind of Safety Meeting," Thomas J. Clark, personnel manager, GLF Soil Building Service and "National Chairman's Report," Vernon S. Gornto, chairman, Fertilizer section, National Safety Council.

NFA Mo. and Va. Tours

Tours scheduled this year by NFA's Plant Food Research committee included a three-day trip through Virginia in May and a Missouri field trip in June.

B. S. Chronister, Nitrogen division, was in charge of arrangements for the Virginia tour which was sponsored jointly by the NFA group and the Virginia Polytechnic Institute and scheduled for May 19-21.

The second tour, planned for June 7-9, with P. W. Gull, of Spencer Chemical Co. in charge, is sponsored by the committee and the University of Missouri. A banquet on the evening of the 7th will feature an address by Dr. W. A. Albrecht, chairman of the U. of Mo. Soils department.

Strauss Featured at MCA Annual Meeting

Admiral Lewis L. Strauss, Atomic Energy Commission chairman, and the Rt. Hon. C. D. Howe, Canadian Minister of Trade and Commerce and Minister of Defense Production, are scheduled to address representives of the Manufacturing Chemist's Association at their annual meeting, June 3-5. The convention will be held at White Sulfur Springs, W. Va.

Dinner for Winners Of Ga. Grazing Contest

A dinner honoring winners of the Georgia Grazing System Contest was held on May 20th at the Biltmore Hotel in Atlanta. This affair is a major activity of the Georgia Plant Food Educational Society.

Program for Virginia Fert. Safety Conference

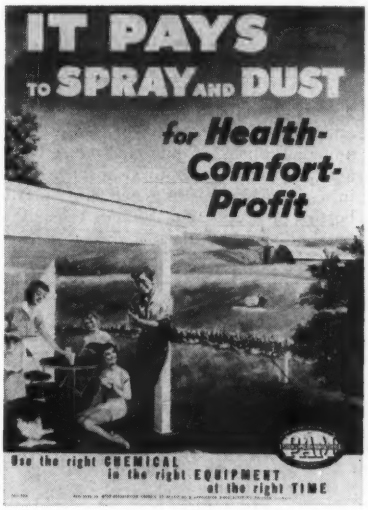
The Fertilizer section of the Virginia Safety conference had an interesting program ready for the 20th annual meeting, May 20-22. D. C. Kieffer, superintendent, Money Point plant of Smith-Douglass Co., was chairman of the section with W. C. Richardson, assistant manager, Fertilizer service, Southern States Coop., and Fritz Wagner, Swift and Co., as co-chairmen.

The program included "How to Make a Safety Inspection," by C. P. Hearne, safety engineer, Va. Department of Labor and Industry; "Evaluation and Follow-Up of Safety Inspection Reports," by C. D. Brightwell, superintendent, Virginia-Carolina Chemical Corp.; "Selection of Employees from the Standpoint of Accident Prevention;" "Selling Safety to Supervisors." P. W. Logan, Liberty Mutual Insurance Co.; "Safety Pays Off," Paul T. Truitt, president, American Plant Food Council; and an audience participation period on "20 Questions and Answers Regarding Safety in Fertilizer Plants."

PAM Kit Prepared

A Spray and Dust Merchandising Kit for dealers has been prepared by PAM, the Inter-Association Council of Pesticide and Applicator Manufacturers.

Included in the kit are a 28" by 40" four-color poster with the heading "It Pays to Spray and Dust . . . for Health . . . Comfort . . . Profit," and a merchandising booklet, "How You Can Sell More Pesticides, Sprayers and Dusters."



PAM Poster

The merchandising booklet discusses sales opportunities which are ever-present for the enterprising dealer. It reviews why it is important for dealers to survey the possibilities of their trade areas and have available concise information on their products and their use in handling pest control problems.

Engle on West Coast For CFA Fert. Movie

NFA agronomist and motion picture expert, Robert H. Engle, has been in California shooting scenes for a forthcoming movie which is being produced by the California Fertilizer Association. It concerns fertilizer utilization in the Far West.

While there, Engle was scheduled to begin work on a new NFA movie on supplemental irrigation as it relates to more effective fertilizer usage. This is planned for production in 1955.

Equipment & Supplies

Rheem Develops New Fiber Container Line

New fiber drums developed by Rheem Manufacturing Co. have attracted particular attention in the farm chemicals field because of their combined durability and economy, states the company.

To meet various size and strength requirements, all-fiber containers are made in sizes from one to 32 gallons, and the fiber-metal drums come in capacities ranging from five to 60 gallons. Diameters range from eight to 23 inches and lengths from seven to 42 inches. Different sizes can be nested to reduce shipping costs and storage space.

Other features available are full-color lithographing or silk screening to match the user's other advertising and plastic or other moisture-resistant linings.

NH_3 First Aid Kit

An Anhydrous Ammonia First Aid Kit has been produced by Mine Safety Appliances Co. for the treatment of victims of ammonia burns. Containing gauze bandages and pads, antiseptic swabs, eye dressings, bandage scissors, eye cup, plastic bottles of acetic acid, sodium thiosulfate and boric acid solutions, a special instruction and contents sheet, the kits are of "all weather" construction. Cases are of 20-gauge steel with carrying handle and finished in durable, blue baked enamel.

Hygroscopic Powder Filler

Geveke & Co. introduced a new high-speed, hygroscopic powder product filler at the recent Packaging Exposition in Atlantic City, N. J.

The filler features a new hydraulic vibrating mechanism which settles hygroscopic and fatty materials effectively in a minimum of working space, dustless operation and auger which does filling at the rate of 50 to 70 per minute with close weight tolerances.

Filtercool Face Mask

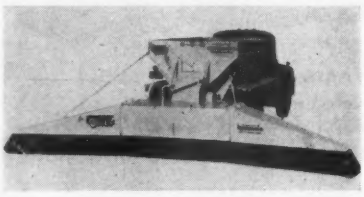
A new air-conditioning face mask, easily used and perfectly safe, which costs less than $20, can deliver a steady stream of clean, cool air to the tractor driver and also removes his exhaled breath, according to its manufacturer, General Scientific Equipment Co.

Filtercool Mask

The new mask, named Filtercool, can be worn all day in complete comfort. A valve adjustment within the operator's easy reach regulates the amount of engine vacuum supplied through the hose of the mask, so that a pleasant and efficient circulation of air can be maintained without producing an actual wind along the driver's face, the company states.

New 'Chief' Spreader For Custom Operators

The 'Chief' Lime and Fertilizer Spreader was engineered and built to give custom operators longer-life equipment with lower maintenance cost and more profitable operation, according to information from its manufacturer, Henderson Manufacturing Co.



Henderson 'Chief'

Features of the Chief include 45° sloped sides to assure free flow of material; wider 24 inch floor to prevent bridging; heavy gauge, high tensile, corrosion- and abrasion-resisting steel sheets used in hoppers; heavy duty conveyor chain which is cold riveted; gearsets assembled in high strength corrision-resistant cast aluminum alloy cases and hardened steel gears housed in twin distributor gear cases, also of corrosion resistant aluminum alloy.

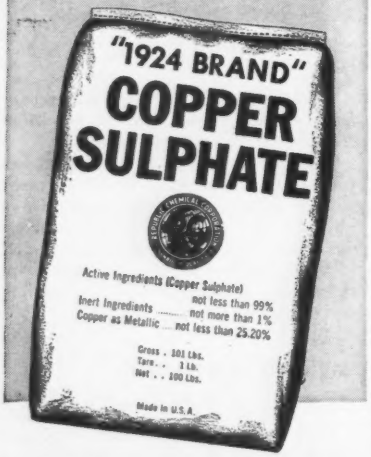
Quick-Lock Couplings

Versatility in service applications is claimed for Le-Hi Quick-Lock Hose Couplings by their manufacturer, Hose Accessories Co. The couplings, which are engaged or disengaged in half a second or less, are quick-acting, interchangeable and assure efficient and long service life, the company reports.

Y & T Carton Clamp

Fragile cartons can be moved and stacked without damage by a new hydraulic carton clamp, reports Yale & Towne Manufacturing Co. The clamps operate with accurately regulated pressure selected by the operator to fit the particular load characteristics without crushing or damaging cartons. Each clamp is equipped with rubber facing pads, properly spaced to assure firm handling.

we manufacture
at Curtis Bay, Maryland


"1924 BRAND"
COPPER SULPHATE
Active Ingredients (Copper Sulphate) not less than 99%
Inert Ingredients ..... not more than 1%
Copper as Metallic .... not less than 25.20%
Gross . 101 Lbs.
Tare . . 1 Lb.
Net . . 100 Lbs.
Made in U.S.A.

REPUBLIC CHEMICAL CORPORATION
94 Beekman St., New York 38, N. Y.
Telephone: REctor 2-9810
Cable Address: Jaynivrad, New York
Established 1924

PESTICIDE FORMULATIONS
Buy for Less!
We will make on order in any concentrate formulations of the following:
2,4-D, 2,4,5-T, MCP, CHLORO-IPC
DDT, BHC, TOXAPHENE, HEPTACHLOR,
CHLORDANE, LINDANE, MALATHION
Rock Bottom Prices!
Box 455, Farm Chemicals Magazine

New S/A Belt Carrier

Unique design features typical of more expensive units have been incorporated in the new SP-745 S-A Belt Conveyor Carrier, according to Stephens-Adamson Manufacturing Co.

Four inch diameter rollers have spun ends and turn on precision ball bearings. Die cast labyrinth seals protect bearings and provide permanent protection because they are non-corrosive. Sufficient grease is contained in bearing chamber to operate carrier rolls on a "lubricated for life" basis.

The carrier is available for stock shipment in sizes for 18, 24, 30 and 36 inch belts.

Level or Pressure Telemeter

The Chronoflo Level or Pressure Telemeter is a system of time impulse transmission which provides telegraphic signals, the duration of which is directly proportional to the level or pressure being measured, according to Builders-Providence, Inc.

It can measure levels in reservoirs, standpipes, elevated tanks, suction wells, storage tanks, basins, automatic valve positioning and automatic pump control, and pressure in pump discharge lines, distribution systems, booster station intake, booster station discharge, industrial processes, steam lines, gas lines and automatic pump control.

Stokes Adds Molded Globe-Type Valves

A new line of molded, globe-type polyvinyl chloride valves has been developed and now is in production by Stokes Molded Products. The valves incorporate many unusual efficiency and economy features such as the ability to repack the stem with Teflon packing even under full pressure. No packing of any type is needed at the valve seat, however, and disk is easily replaceable.

Non-corrosive and applicable throughout the chemical process, petroleum and other industries in places where medium pressures and temperatures not exceeding 160° F. are required, the valves are made to fit pipe sizes of 1 and 1½ inches.

Magnesium Hand Truck

Newest addition to the lightweight line of magnesium hand trucks manufactured by Magline, Inc., is the Model No. 12-H-802. According to the company, it is rated to handle loads of up to 450 pounds safely and easily, yet weighs only 16 pounds when equipped with rubber-tired magnesium wheels and 20 pounds when equipped with standard semi-pneumatic tires.

Fabricated completely of magnesium, the new model is mechanically assembled from standard Magliner component parts, with no welding whatever employed. In service, any part can easily be replaced from standard factory stocks, thereby eliminating maintenance expense and greatly extending the useful service life of the truck.

New Packages for American P & C

A new package design was recently introduced for the four major heavy chemicals—potash, salt cake, soda ash and borax—produced by American Potash & Chemical Corp.

Consisting of blue-on-kraft and green-on-kraft colors for different products, the new design provides easier identification during handling and warehousing. This change is in line with the company's plan to redesign all of its product containers.

Y & T Device Halts Radio Interference

Yale & Towne Manufacturing Co. has designed and built the first electric truck with effective radio interference suppression, the company reports. This new development means that electric fork trucks can now be used near radio or radar installations, in plants where two-way radio is employed, around industrial or commercial television installations and near many electronic devices.

Compression Pipe Coupling

A compression pipe coupling for connecting small pipe has been placed on the market by Utility Clamp & Equipment Co. It has been designed to speed up work, give a high degree of safety and cut down repairs, states Utility.

The need for thread cutting or exact pipe fitting is eliminated—the installer merely inserts the pipe ends into the factory assembled couplings and tightens the compression nuts.

Available in ½, ¾, 1, 1¼, 1½ and 2 inch IPS, the couplings have sleeve lengths from 2¾ inches to 4 inches, increasing in size ¼ inch for each larger pipe diameter. Shorter or longer sleeve lengths are obtainable.

Suppliers' News

Clark Equipment Co. has established a Ross Carrier division for its Ross line of straddle carriers, according to an announcement by W. E. Schirmer, Clark vice president. A. H. Peirce has been named division manager and Roger Spencer will continue as chief engineer for the line.

Although Jack W. Ross will supervise sales information activities for the division, the carriers will continue to be marketed through the sales organization of the Industrial Truck division.

The company recently produced a 25-minute sound film entitled "Over-The-Load Materials Handling" which shows applications of Ross straddle carrier type of industrial trucks in various industries.

Production and sales of paper, board and pulp by **International Paper Co.** and subsidiaries reached record totals during 1953, according to John H. Hinman, president.

Kraft Bag Corp. has just sent out to thousands of prospective users a full size 80 lb. Kraft-lok fertilizer bag with a message printed on its face. The Kraft-lok integral sleeve principle, first developed by the company early in 1953, has been hailed as the first big improvement in valve type bags in 20 years, Kraft states. Users report that the valve improves handling through better venting, causes less plugging of material and closes tighter with less sifting.

serving over 100 principal industries
through ***AA Quality*** factories and sales offices

Air view of A.A.C. plant at Detroit, Mich. . . . 33 A.A.C. factories and sales offices, most of them in or near principal industrial centers, assure dependable service.

AA Quality

for over 85 years
a symbol of quality
and reliability

principal *AA Quality* products

All grades of Florida Pebble Phosphate Rock
AA QUALITY Ground Phosphate Rock
All grades of Commercial Fertilizers
Superphosphate — Sulphuric Acid
Insecticides and Fungicides
Phosphoric Acid and Phosphate
Phosphorus and Compounds of Phosphorus
Fluosilicates — Salt Cake
Gelatin — Bone Products
Ammonium Carbonate

THE AMERICAN AGRICULTURAL CHEMICAL COMPANY

GENERAL OFFICE: 50 CHURCH STREET, NEW YORK 7, N. Y.

33 FACTORIES AND SALES OFFICES, SERVING U.S., CANADA AND CUBA—ASSURE DEPENDABLE SERVICE

Washington Report

By Fred Bailey & John Harms

Odds now are mounting against passage of the atomic energy licensing bill during the present session of Congress. As we went to press it was clear that intricate details and unanswered questions on the proposed legislation may slow down the measure. Press of Administration "must" legislation (tariffs, agriculture, taxes, foreign policy, etc.) and war talk also made it doubtful that the Administration would press for passage of the atom-for-industry law this year.

Considerable doubt exists as to whether provisions of the bill as now written could be made to work beneficially. Industry spokesmen, including chemical representatives, told the Joint Committee on Atomic Energy that provisions of the bill were "confusing, vague, and perhaps even unworkable."

Major roadblocks to workability of the proposed law, the committee was told, are (1) Prevention of private ownership of radioactive and fissionable materials and (2) complex licensing procedures. Industry spokesmen say that the fact that industry could not own radioactive materials would make financing difficult at best. As for licensing, firms would never know from one year to the next how long they could stay in operation since the Atomic Energy Commission had life or death control over licensing. Under the measure, AEC could amend, revise, revoke and annul any license . . . "for almost any reason."

Generally, however, testimony before the Joint committee was favorable to passage of the bill . . . primarily because it "is a step in the right direction." Thinking is that even though the bill may be loaded with imperfections as finally written, it should be passed for, as one industry man put it, "The door at least would be open."

While there is no question that use of the atom would spur the progress of the chemical industry, there undoubtedly would be serious problems along the way. One of these was alluded to during scientific testimony before the Joint committee.

Atomic irradiation in the preservation of food was hailed as a recent development with tremendous potentiality.

At present, food is preserved through treatments of heat, chemicals and other methods requiring products of the chemical industry. Although results from irradiation studies are still far off, the decision of the Army to launch a five-year research project to develop a method of safely preserving food for the military through atomic radiation indicates that changes are on the way. Results of the Army's giant project will be passed on to the food industry later.

The Army took this move almost immediately following the appearance before the Joint committee of biologists who testified that studies show that potatoes, onions and beef could be preserved in an edible state for long periods of time through this revolutionary method.

Watch for an extensive government survey next fall to determine industrial capacity, raw material requirements and end products of about 50 major chemicals.

The Business and Defense Services Administration is already launching a similar survey of the benzene industry. It hopes to get sufficient funds from Congress to undertake the broader survey in the fiscal year beginning July 1.

Shortage of pesticide materials could become acute in many sections of the country this year. Factors leading up to this potentially serious situation are (1) lower stocks of some pesticidal chemicals due to small demand last year and resulting reduced production of these substances this winter and (2) reported build-up of some insect populations, including the boll weevil. The Agriculture department is warning farmers of shortages ahead . . . also that formulators who bought only enough stocks for current needs may not be able to supply the demand.

Agriculture department surveys indicate that production of gamma benzene hexachloride was down 32 per cent in 1953 and DDT output down 16 per cent. Here, briefly, are USDA preliminary estimates of major chemical production in 1952 and 1953:

BHC (gross), 86.3 million pounds in 1952 and 61 million in 1953; BHC (gamma equivalent), 14 million lbs. and 10.6 million; calcium arsenate, 7.6 million and 7.3 million; copper sulfate, 189 million and 145 million; 2,4-D (acid basis), 31 million and 25 million; DDT, 99.9 million and 83.9 million; lead arsenate, 14.3 million and 14.2 million; 2,4,5-T (acid basis), 3.4 million and 5 million lbs.

The Agricultural Conservation Program (ACP) will be tied in directly with a new payments program for land diverted from controlled crops to soil-building practices. Announcement is expected next month.

The Agriculture department planned to use part of the $195 million ACP fund for diverted-acres payments to the extent that it ran short of special diversion funds . . . unless Congress authorized more money for diversion subsidies. The House had already provided $55 million for payments to farmers who take land out of crops under acreage allotments . . . over and above ACP money. The Senate was expected to concur. At press time several congressmen were preparing to introduce legislation to boost the diversion fund on grounds that a "raid" on ACP would reduce the program.

Payments for liming practices are not expected to be curtailed under the combined program. USDA insiders say liming practices, at least for next year, very likely will be approved for the diverted land program as well as ACP. But remember —the Administration views liming as a semi-permanent conservation at best.

ACP participation, meanwhile, is expected to show a decline from previous years. Reason: Farmers find it difficult to put up the money for all practices they are required to undertake in the "package practice program." They are only eligible for government payments if they perform all practices in their individual "package."

Agriculture department entomologists have come up with a perfect argument for the use of more insecticides. A 34-year study at Tallulah, La., shows that insecticides increase cotton yield an average of 25 per cent. Tests over this time-span have resulted in an annual average seed-cotton yield of 1,826 pounds per acre . . . 371 pounds, or 25.5 per cent, more cotton than from untreated cotton plots. The latter averaged 1,445 pounds per acre.

Fertilizer tests at the Texas Experiment Station "indicate that nitrogen was the only fertilizer that significantly increased the yield of Coastal Bermuda-grass." The yield increase was roughly twice as much in plots that received 160 pounds per acre of nitrogen—as in plots that received none. The gain amounted to about two tons per acre of air-dried forage.

MICHIGAN *bucket control means "Bigger Loads . . . . . FASTER"*

Watch a MICHIGAN Tractor Shovel at work —with particular attention to bucket action —and you'll *see* how a MICHIGAN* will *handle bigger loads, move more yardage*—faster, at considerably lower cost.

- *Tremendous break-out power*—ram the cutting edge into any tough, hard-to-dig clay, shale or loose rock—and *work the bucket* to loosen it
- *Bucket roll-back at ground level*—pick up and transport full buckets at low center of gravity for safe traveling, no void space in the bucket; more work in less time
- *Remarkable digging ability*—two large double acting cylinders on bucket and two large double acting cylinders on main lift give excellent control and superior digging action.
- *Good bucket height and reach*—high dumping clearance and ample forward reach make trucks easy to load.

Check these outstanding Quality Features of MICHIGAN* Tractor Shovels

1. Superior Bucket Action—bigger loads, faster loading

2. Clark Power-Shift Transmission—faster operating cycle gets more yardage

3. Clark Torque Converter—3-to-1 torque multiplication; *power when needed*—no conventional clutch

4. Clark Planetary Axle—relieves torque load on shafts and gears, prolongs machine life

5. Power Steering—much easier handling, lessens driver fatigue

6. Gas or Diesel—right power for the job; more horsepower than any comparable machine

Six models: capacities from 1 5 cubic feet to 2¼ cubic yards. Facts about the MICHIGAN Tractor Shovel are important—and interesting. The MICHIGAN Fact Folio contains specifications and action photos. The coupon gets it for you.

**A Trademark of Clark Equipment Company*

CLARK EQUIPMENT

16A

CLARK EQUIPMENT COMPANY
Construction Machinery Division
530 Second Street, Benton Harbor, Michigan

Please send the MICHIGAN Tractor Shovel Fact Folio

Name_____ Title_____

Firm_____

Address_____

City_____ County_____ State_____

DDT BHC

DIAMOND

COTTON DUSTS

The Old Reliables for Protecting Cotton Crops

- basic insecticides
- chemically stable
- tried and trusted by all
- especially effective against cotton insects
- economical

FORMULATORS: For technical assistance, delivery and price data, contact DIAMOND—one of the world's largest manufacturers of insecticides and herbicides.

DIAMOND AGRICULTURAL CHEMICALS

- DDT
- BHC
- LINDANE
- MITICIDE K- 101
- Seed Protectants
- 2, 4-D Weed Killers
- 2, 4, 5-T Brush Killers
- 80-20 Grain Fumigant

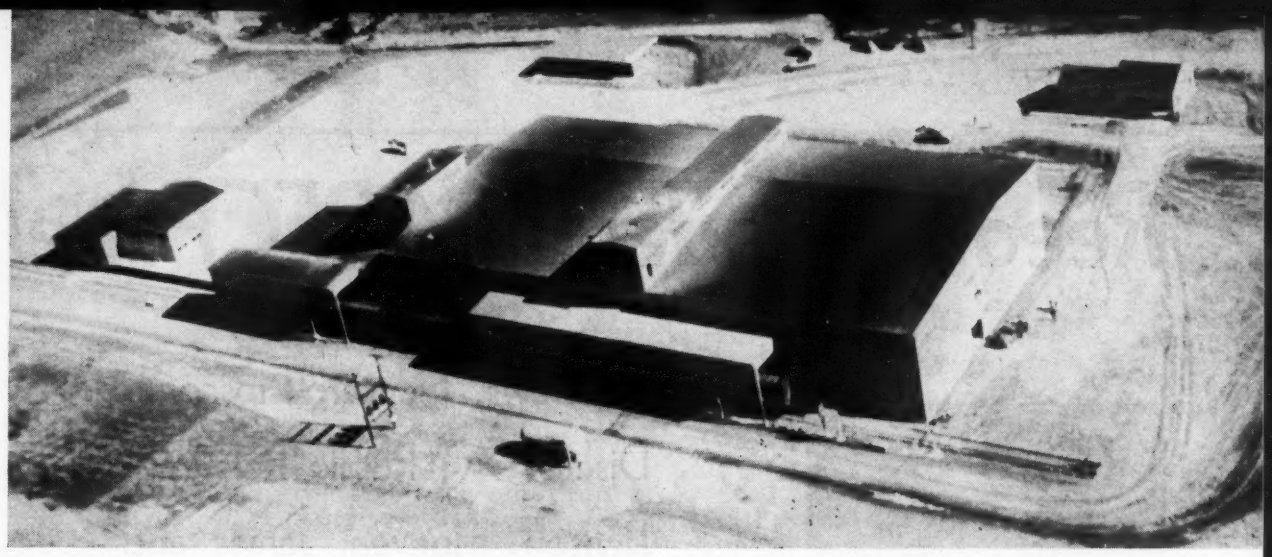
and many other chemicals that help farmers, gardeners, cattlemen and orchardists.

DIAMOND ALKALI COMPANY

DIAMOND ALKALI CHEMICALS

Cleveland 14, Ohio

PLANTS: NEWARK, N. J. • HOUSTON, TEXAS



Open Clarksville IMC Plant

Open house at the new Clarksville, Tenn., fertilizer plant of International Minerals & Chemical Corp. was held on April 20. An estimated 350 people including prominent farmers, dealers, agricultural authorities and local dignitaries gathered to celebrate the official opening of the latest International facilities.

Ceremony Broadcast

During the day, inspection tours were made through the plant, a barbecue lunch and refreshments were served and the opening ceremonies were broadcast directly from the plant in a half hour program over station WJZM.

The new plant, located five miles north of Clarksville on Highway 41A, is a dry mix operation featuring a fully automatic basing unit. Superphosphate is obtained from International's Florence, Ala., plant and potash from the IMC mine and refinery at Carlsbad, N. M.

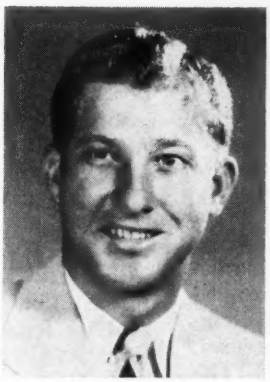
Million Dollar Investment

The facilities represent an investment of approximately one million dollars. Included on the site is a modern office building where accounting will be handled for the local plant. R. E. Dunn Co., Nashville, Tenn., served as general contractor for the plant.

In charge of the operation is James H. Sibley, district sales manager. Sibley is a former Veterans Farm Training program coordinator and was previously an International sales representative in Tennessee and Alabama.

Plant superintendent is J. H. Whitesides, formerly of Tupelo, Miss., where he was assistant superintendent of the plant at that location. He has been with the company for twenty-five years.

H. H. Douthit, located at Cincinnati, is manager of the area which includes the Clarksville district.



J. H. Sibley

J. H. Whitesides

He has been area manager since 1952, and prior to that had been on the staff of International's Potash division.

Goods Produced

Both regular and high analyses goods will be produced at Clarksville with grades including 10-10-10, 6-12-12, 5-20-20, 4-12-8, 3-12-12, 3-9-6, 2-12-6 and 0-12-12. All tobacco grades are made with sulfate of potash and growers can choose from special 5-10-15, 5-10-10 and 4-8-8 tobacco fertilizers.

In addition to mixed fertilizers the plant will have available granular multiple superphosphate, muriate and sulfate of potash, Sul-Po-Mag, Chilean nitrate of soda, ammonium nitrate and Nitrolime.

At the official opening, Maurice Lockwood, vice president, was scheduled to head a delegation of IMC officials including Joe Stough, sales manager; F. H. Perrin, production manager; Frank Walters, division manager; Fred Lange, chief engineer, Plant Food division and Ben Larsen, construction engineer for the new plant. ◆

Reed to Moderate APFC Panel

Andrews, Eleazer, Lipscomb Discuss Ag Public Relations; Benson, Hoeven, James and Sanders are Main Speakers

Ezra Taft Benson

Subjects have been announced for members of a panel forum on "Improving Agricultural Public Relations and Information to the Farmer," an event scheduled for the American Plant Food Council convention, The Homestead, Hot Springs, Va., June 10-13. The panel will follow an address by APFC President Paul T. Truitt, on the program for Thursday, June 11.

Robert H. Reed, editor of "Country Gentleman," who will be moderator for the forum on Friday, 10:20 a. m.

Stanley Andrews, managing director, National Project in Agricultural Communications (Kellogg Foundation), Michigan State College, will discuss "Some New Efforts to Improve Agricultural Information;" J. M. Eleazer, extension information specialist, Clemson Agricultural College, is scheduled to speak on "How to Talk to Farmers" and Ed Lipscomb, director of public relations, National Cotton Council, will provide some suggestions based on the forum theme. The panel will be moderated by Robert H. Reed, editor, COUNTRY GENTLEMAN.

Program Changes

Two changes in the program line-up have been released by APFC. On June 12, Dr. H. B. James, head, Department of Agricultural Economics, North Carolina State College, will speak on "The Agricultural Economic Outlook." Dr. Earl O. Heady, included in the preliminary program, will not be present.

Featured speakers on the program, in addition to Dr. James, include Ezra Taft Benson, secretary of agriculture, and Charles B. Hoeven, chairman, House Subcommittee on Fertilizer and Farm Machinery. Hoeven will open the Saturday meeting with an address on "The Farmer and Congress," while Secretary Benson is scheduled to speak the same morning on "Food, Fiber, Fears and Facts."

Builders Award

During the Friday program, Louis H. Wilson, APFC secretary and director of information, will present the Soil Builders Award to two outstanding farm magazine editors. Planned in cooperation with the American Agricultural Editors' Association, the awards are designed to recognize editors and their staff members "who have rendered outstanding service as soil builders and, as such, builders of a more sound and profitable farming system."

Dr. Paul D. Sanders, editor, THE SOUTHERN PLANTER, will be the featured banquet speaker on Saturday evening and will speak on "An Editor's Thoughts."

Registration will begin on Thursday, June 10, and meetings of the APFC board of directors are scheduled for Thursday evening and Sunday morning.

Special activities include an after-dinner reception on Friday by Southwest Potash Corp. and a Hospitality hour on Saturday evening, courtesy of Potash Co. of America. Golf and tennis will be featured on both Friday and Saturday, a game night on Thursday evening and dancing on Saturday.

Please note that in the program on the opposite page all events are scheduled on Eastern Standard Time. ◆

APFC Convention Program

Events are scheduled on Eastern Standard Time

FRIDAY, JUNE 11

9:45 a.m. **OPENING of Convention**

Invocation: The Rev. D. F. Helm, Hot Springs Presbyterian Church.
In Memoriam Resolution: M. S. Wright, chairman, Memorial committee.

10:00 a.m. Address by the President

10:20 a.m. **FORUM: "Improving Agricultural Public Relations and Information to Farmers."**

Moderator: Robert H. Reed, editor, Country Gentleman. Panel and their topics: "Some New Efforts to Improve Agricultural Information," Stanley Andrews, Michigan State College; "How to Talk to Farmers," J. M. Eleazer, Clemson College; "Suggestions for Improving Agricultural Public Relations and Information to Farmers," Ed Lipscomb, Nat. Cotton Council.

Reed

Andrews

Eleazer

Lipscomb

11:35 a.m. **Presentation of Soil Builders Award by Louis H. Wilson.**
9:00 p.m. **Reception: Southwest Potash Corporation.**

SATURDAY, JUNE 12

9:45 a.m. **CONVENTION MEETING**

9:50 a.m. "The Farmer and Congress," Hon. C. B. Hoeven, chairman, House Subcommittee on Fertilizer and Farm Machinery.

Hoeven

10:20 a.m. "Food, Fiber, Fears and Facts," The Honorable Ezra Taft Benson, Secretary of Agriculture.

Benson

10:50 a.m. "The Agricultural Economic Outlook," Dr. H. B. James, head, Dept. of Agricultural Economics, North Carolina State College, Raleigh.

James

11:20 a.m. **Annual Business Meeting.**
6:30 p.m. **Hospitality Hour: Potash Company of America**
7:45 p.m. **Banquet**

Sanders

"An Editor's Thoughts," Dr. Paul D. Sanders, editor, The Southern Planter.

Plant at El Dorado, Arkansas,
170,000 tons nitrogen per year.
L I O N
NOW! 2 GIANT
LION CHEMICAL
New plant near New Orleans,
90,000 tons nitrogen per year.

LET LION'S TECHNICAL SERVICE WORK FOR *YOU*

When you need help on any problem involving formulations with nitrogen fertilizer materials, feel free to call on Lion's Technical Service. Skilled and experienced men are available to assist you . . . to make sure you get full advantage from Lion quality.

T CHEMICAL PLANTS

to bring you *more* top-quality

LION NITROGEN FERTILIZER MATERIALS

With Lion Oil Company's new $31,000,000 Barton Chemical Plant "on stream" near New Orleans you have assurance that Lion can supply still more of your needs for nitrogen fertilizer materials.

These days, it takes equipment and machinery of advanced design to speed the manufacturing of top-quality petro-chemicals. The new ultra-modern Barton plant is further evidence of Lion's determination to serve you with the finest materials that can be made.

Remember . . . every enduring business is built on quality. By building your business on formulations using Lion Nitrogen Fertilizer Materials, you can build your reputation on a quality foundation.

LION OFFERS ONE-STOP SERVICE FOR NITROGEN FERTILIZER MATERIALS

Lion Anhydrous Ammonia
Lion Aqua Ammonia
Lion Ammonium Nitrate Fertilizer
Lion Nitrogen Fertilizer Solutions
Lion Sulphate of Ammonia

DISTRICT SALES OFFICES: NATIONAL BANK OF COMMERCE BUILDING, NEW ORLEANS, LOUISIANA
SHEPHERD BUILDING, MONTGOMERY, ALABAMA

LION OIL COMPANY
CHEMICAL SALES DIVISION — EL DORADO, ARKANSAS

LION

NFA Convention Features Addresses by Benson, Cole

"AGRICULTURE Moves Toward Useful Abundance" is the subject Ezra Taft Benson, secretary of agriculture, has selected for his address before the National Fertilizer Association at the Greenbrier Hotel, White Sulphur Springs, W. Va., on June 14–16.

Also featured on the program will be W. Sterling Cole, chairman of the Congressional Joint Committee on Atomic Energy, who is scheduled to discuss "Putting the Atom to Work in Industry and Agriculture."

The remarks of these prominent officials and an address by Louis Ware, NFA board chairman and president of International Minerals & Chemical Corp., will highlight a diversified convention program.

Two Symposia

Two symposia, sponsored by NFA's Plant Food Research committee, are scheduled for the 16th, running concurrently and beginning at 10:00 a.m. Of special interest to engineering and plant operation personnel will be a discussion of the granulation process in the production of fertilizer, moderated by Edwin C. Kapusta, NFA chemical engineer.

Appearing on the granulation panel with Kapusta will be W. W. Coffin, Link-Belt Co.; Robert J. Engelhardt, project engineer, John J. Harte Co.; John O. Hardesty, senior chemist, Agricultural Research Service, USDA and L. D. Yates, Division of Chemical Development, TVA.

H. H. Tucker, president, Coke Oven Ammonia Research Bureau, will be moderator of a second panel which will discuss "What Makes Fertilizer Move?", a subject of particular interest to management and sales personnel. Panel members will include Harold R. Dinges, director of product sales, Spencer Chemical Co.; George E. Smith, professor of soils, University of Missouri and O. E. Anderson, secretary, Ohio Bankers Association. Audience participation is invited in both symposia.

Following Rep. Cole's address on Tuesday morning will be a business meeting. Other scheduled events include meetings of the Executive committee, the board of directors, Plant Food Research, Public Relations and Publications committees.

Entertainment

Following the annual convention dinner Tuesday evening, there will be entertainment and dancing with music furnished by the Meyer Davis Orchestra. A refreshment hour, through the courtesy of International Minerals & Chemical Corp., will precede the dinner.

The Monday evening feature is a cabaret party with music and dancing preceded by cocktail parties given by American Potash and Chemical Corp. and H. J. Baker & Bro., and a reception by Southwest Potash Corp.

Golf and tennis tourneys are planned for both men and ladies along with a horseshoe pitching contest for men. Other recreation available to hotel guests includes horseback riding, badminton, archery, shuffleboard and quoits. Special events for the ladies include a garden party Monday afternoon and a bridge and canasta party, Tuesday afternoon.

Attendance is expected to total about 700 members, guests, staff personnel and press representatives. ◆

What Makes Fertilizer Move?

This subject will be discussed by O. E. Anderson (below left), secretary of the Ohio Bankers Association; Harold R. Dinges (center), director of product sales, Spencer Chemical Co. and George E. Smith (right), professor of soils, University of Missouri. H. H. Tucker, president, Coke Oven Ammonia Research Bureau, will be moderator of the panel.

NFA Convention Program

SUNDAY, JUNE 13

7:30 p.m. Executive committee meeting. **8:30 p.m.** Registration.

MONDAY, JUNE 14

8:00 a.m. Breakfast meeting of the Committee on Publications.
9:00 a.m. Registration continued. Meeting of the board of directors.
11:00 a.m. GENERAL MEETING

Invocation: Rev. D. L. Beard, pastor, First Presbyterian Church, White Sulphur Springs, W. Va.

Benson

ADDRESS: "Agriculture Moves Toward Useful Abundance," Honorable Ezra Taft Benson, Secretary of Agriculture.

6:00 p.m. Refreshments—American Potash & Chem. Corp., H. J. Baker.
9:00 p.m. Reception—Southwest Potash Corporation.
10:00 p.m. Cabaret Party—Music and Dancing—Meyer Davis Orchestra.

TUESDAY, JUNE 15

8:30 a.m. Breakfast meeting of the Plant Food Research committee.
10:00 a.m. GENERAL MEETING, addresses by

Cole

Louis Ware, chairman of the board of directors, National Fertilizer Association; and Hon. W. Sterling Cole, congressman from New York, "Putting the Atom to Work in Industry and Agriculture."

Ware

Business Meeting

2:30 p.m. Bridge and Canasta Party for the Ladies.
6:00 p.m. Refreshment hour—International Min. & Chem. Corp.
7:45 p.m. Convention dinner. 9:30 to 1 a.m. Dancing.

WEDNESDAY, JUNE 16

9:30 a.m. Organization meeting of the new board of directors.
10:00 a.m. SYMPOSIA

1. What Makes Fertilizer Move?

Moderator: H. H. Tucker, president, Coke Oven Ammonia Research Bureau. Panel: O. E. Anderson, secretary, Ohio Bankers Assn.; H. R. Dinges, director of product sales, Spencer Chem. Co. and G. E. Smith, professor of soils, University of Missouri.

Tucker

2. Granulation

Kapusta

Moderator: Edwin C. Kapusta, chemical engineer, NFA. Panel: W. W. Coffin, Link-Belt Co.; R. J. Engelhardt, project engineer, John J. Harte Co.; J. O. Hardesty, senior chemist, Agricultural Research Service, USDA and L. D. Yates, Division of Chem. Dev., TVA.

12:00 noon Adjournment.

PESTICIDE *Developments*

CIPC for Onion and Lettuce Weed Control

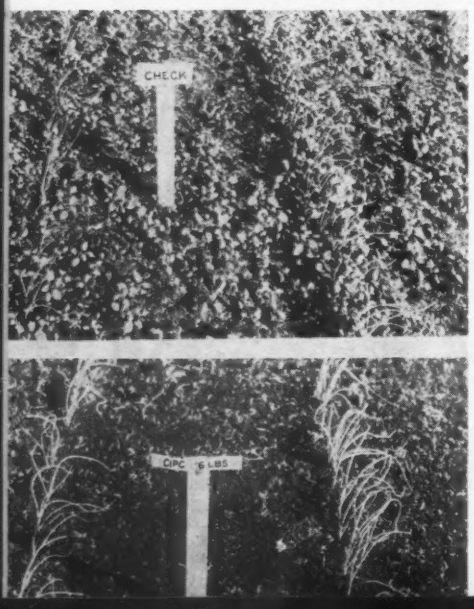
Use of Chloro-IPC as a pre-emergence herbicide on onions and lettuce has been accepted by the USDA, according to Columbia-Southern Chem. Corp.

Reports indicate that good weed control in seeded onions may be obtained by using four to eight pounds of the herbicide per acre on muck and four to six pounds on mineral soil, both as a pre- and post-emergence treatment.

It was pointed out that reduced stands have resulted in some cases with pre-emergence treatment. Post emergence work has been successful at one-and-one-half, five, seven, nine and 12 inch heights and when tops begin to fall over. The same treatment as above may be used for onion sets, but injury is much less likely to occur from pre-emergence usage. For lettuce, one to three pounds per acre at planting time has been successful.

Columbia-Southern emphasizes that CIPC should be applied to the bare soil before weed seeds germinate.

Comparison of Chloro-IPC's effects on onions. First photo shows untreated check in muck soil. Bottom: Post emergence control of weeds in onions on muck. Use directed spray of #6 A.)



Diazinon Receives USDA Approval

Diazinon, the new fly control material from Geigy Agricultural Chemicals, has been given USDA approval. The organic phosphate is now available for commercial use in 25 per cent wettable powder form and as a one per cent bait.

Geigy, originator of DDT, points out that one of the most encouraging features of diazinon is its control of house flies that are resistant to chlorinated hydrocarbons. It is intended for use in non-dairy barns, sheds and poultry houses and should not be applied to animals or in dairy barns, food processing plants or human dwellings.

For fly control, a spray containing 32 pounds of the wettable powder in 100 gallons of spray is applied to ceiling and walls of loafing sheds, hog barns, etc. The walls should be wet thoroughly with one gallon covering about 250 square feet of surface. Repeat applications may be required.

The company cautions that all livestock feed should be covered and animals removed from buildings during spraying operations. Animals should be kept away from sprayed areas for at least four hours.

A new approach in fly control is utilized with the one per cent bait. This is sprinkled on floors and other level surfaces at a rate of approximately four ounces per 3,000-4,000 square feet of area. Artificially colored sugar is the attractant used in the bait formulation.

Still under test are a 25 per cent emulsion concentrate and a four per cent dust. Geigy claims that Diazinon is showing promising results in tests involving a number of crop pests.

New Small Package Liquid Concentrates

Two new small package pesticides, a Rose and a Plant spray, have been introduced by Patterson Products Co., Kansas City, Mo. C. A. Patterson, Jr., secretary-treasurer of Pearson-Ferguson Chemical Co., says they believe this is the first time that a product containing both insecticides and fungicides has been offered in liquid concentrate form for mixing with water.

Both formulations contain methoxychlor (13.5 per cent), aramite (3.5 per cent), lindane (2.75 per cent) and copper oleate (2.0 per cent) as active ingredients.

The Patterson organization has been established to produce these products and others that might appear unique and saleable, Patterson explains. Pearson-Ferguson, along with other outlets, acts as a distributor for the materials.

Crag Herbicide-1 Controls Lawn Weeds, Crabgrass

Tests by Carbide and Carbon Chemicals Co. have shown that crabgrass and other annual weeds can be prevented from growing in well established lawns by using Crag Herbicide - 1.

For crabgrass control the herbicide is applied in early spring and at monthly intervals throughout the summer to kill the weed seeds as they start to sprout.

Aldrin Seed Treatment

Shell Chemical Corp. reports that aldrin has received USDA approval as a seed treatment, alone or in combination with fungicides. In addition to use on corn, oats, wheat and other small grains, aldrin can be applied as a seed treatment on beans, peas, cucumbers and sugar beets. Either dust or wettable powder formulations can be used.

Niagara Introduces Antibiotic Fungicide

Niagara Chemical division, Food Machinery & Chemical Corp., has announced the first successful use of an antibiotic as a plant fungicide. The new formulation, Actispray, is compounded from actidione which, in human medicine, is used for some treatments of the gastric tract. It has provided protection for sour cherry trees against the cherry leaf spot.

Actispray kills the cherry leaf spot fungus even after it has been established for periods up to 96 hours. The effect is not destroyed by rains after the spray has had at least one hour to set and, if applied before leaves turn yellow from infection, premature leaf fall will be greatly reduced.

The material is packaged in glass tubes in the form of soluble tablets, each of which forms an effective spray when dissolved in 100 gallons of water. It has no known value as an insecticide but is compatible with most common insecticides.

Motomco Introduces Water-Soluble Pivalyn

Pivalyn water-soluble anticoagulant rodenticide has been released for general sale, according to Warren Dolben, president of Motomco, Inc., licensees and sole producers of the pesticide. Pivalyn is being distributed directly to the pest control industry and to manufacturers and distributors of pesticides and will soon be available at retail.

The material is formulated in a sugar base and dissolved in water to provide a sweetened liquid bait. It incorporates all of the features of low-dosage coagulants which have been available for general use to date only as dry cereal-type baits.

When dissolved according to directions, the Pilvalyn concentration is a very low one part per 20,000. Effectiveness of the bait is attributed to the large amount of water required by rodents plus the probable faster absorption of the soluble form.

Both laboratory and field tests have demonstrated that the sugar solutions possess excellent keeping qualities and resist molding.

D-D-Hi-Sil Treatment for Nematodes

Experiments conducted by A. L. Taylor and A. Morgan Golden, USDA's Agricultural Research Service, indicate that there may be a distinct advantage in application of D-D soil fumigant (Shell Chem. Co.) when the material is mixed with Hi-Sil diluent (Columbia-Southern Chemical Co.).

The authors point out, in an article in a recent *Plant Disease Reporter*, that present application methods for soil fumigants in nematode control are far from ideal. The D-D Hi-Sil combination represents a new approach to this application problem.

In greenhouse experiments, a sandy soil heavily infested with root-knot nematodes was used. The mixture was applied by first punching holes in the soil about an inch in diameter and three inches deep at intervals of 12 inches in staggered rows 12 inches apart.

A measured quantity of the D-D Hi-Sil was placed in each hole and immediately covered with soil. The plots were raked lightly after treatment to smooth the surface. No cover or water seal was used. Amounts applied were none, one gram, two grams, four grams or eight grams per square foot.

On the day of treatment, one row of squash seed was planted along one edge of each plot. Five additional rows were placed each two or three days, the last, 12 days after treatment.

In the field experiment, treatment procedure was the same as that used in the greenhouse except that holes were punched six inches deep. One row of string bean seed was planted in each plot on the day of treatment with five additional rows placed at two or three day intervals, the last, 15 days after treatment.

In the greenhouse experiment, effect of treatment was estimated by removing roots of the squash plants from the soil about six weeks after treating and examining them for root knot. Each root was rated on this scale: 1—no root knot; 2—trace of root knot; 3—light infection; 4—moderate infection and 5—heavy infection.

Control, as shown in the table, was satisfactory with the four gram per square foot application, a rate equivalent to about 24.7 gallons of D-D per acre. Because the usual recommendation for D-D treatment is 20 to 30 gallons per acre, the results obtained were about what would be expected from applications of equivalent amounts of D-D per acre.

There was no indication that the mixture had any effect on the efficacy of D-D as a soil fumigant. As far as can be judged from the data, nematode control and plant toxicity was neither increased nor decreased.

The advantage is in the relatively simple method of application—one that would be nearly ideal for the home gardener or other small user. One improvement suggested by the authors is that the material be made available in pellet form to eliminate measuring.

They also point out that because D-D Hi-Sil does not have to be mixed with the soil, it could be applied on a large scale by some types of fertilizer distributors.

"Preliminary Trials of D-D Hi-Sil as a Soil Fumigant," Plant Disease Reporter, Vol. 38, No. 2, Feb. 15, 1954; pages 63–64; by A. L. Taylor and A. Morgan Golden.

Average test results following D-D-Hi-Sil treatment

Amount of D-D Hi-Sil, grams per sq. ft.	Squash from greenhouse		Soil from field plots	
	Green weight (grams)	Root-knot index[a]	Number of nematodes	% reduction from control
0 (control)	47.2	4.6	109	—
1	104.9	3.3	43	61
2	131.7	2.4	21	81
4	190.6	1.4	11	90
8	148.7	1.1	2	98

[a] See Text

Davison Triple Super Plant

Airplane view of Davison's $10.4 million Bartow plant. At left is the phosphoric acid manufacturing section, triple superphosphate manufacture and phosphate rock grinding section and finished product storage building. Across the tracks at right is the sulfuric acid plant.

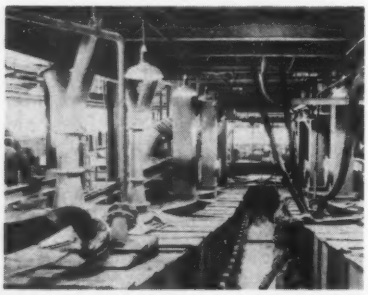
$10.4 Million 200,000 Ton Operation Makes Davison Second Largest Producer

Davison Chemical Corp. has placed in operation its new $10,400,000 triple superphosphate plant at Bartow, Fla. The facilities are located on a 45-acre site near Davison's phosphate rock mining properties.

Production capacity, rated at 200,000 tons per year, makes Davison the second largest producer of the chemical.

Sulfuric Plant

A sulfuric plant at the site, designed by Monsanto Chemical Co., has a rated capacity of 550 tons of 100 per cent acid per day, making it the largest contact process unit in operation, according to Monsanto. Heat developed in this process is used to power much of the equipment of the triple plant.



ABOVE: Phosphoric acid reaction train at new triple super plant.

BELOW: Dried triple super is conveyed into product storage building, 140' x 325', near Bartow.

In this operation, Davison mined phosphate rock is transferred to the triple plant by hopper-bottomed rail cars and there elevated to three 1,100 ton capacity storage silos, each 30 feet in diameter by 47 feet high. For the rated output of the plant, about 325,000 net tons of rock per year will be required.

Rock is transferred from the silos to a grinding system consisting of three Raymond roller mills in closed circuit with Whizzer separators. After grinding it is transferred to four storage bins holding from 50 to 60 tons of rock each.

The ground rock is reacted with sulfuric acid in a series of agitator equipped tanks and the resulting slurry of phosphoric acid and gypsum filtered on traveling pan-type filters.

Three Evaporators

Clear phosphoric acid is then pumped to evaporators where water is driven off and the acid concentrated. There are three single-effect vacuum evaporators, each 15 feet high and 6.5 feet in diameter, with runner lined bodies and tubes of Karbate.

This concentrated material is mixed with more ground rock in a series of agitated reaction vessels and the product is mixed with recirculated fine triple superphosphate and fed to an oil-fired, direct heat, concurrent rotary drier.

Dried material is screened to separate or scalp out both oversize and undersize particles which are recycled back into the process.

In a 35,000 ton storage building, 325 feet by 150 feet, a brief final curing period preceeds shipment. About 20 per cent will be bagged for direct application sale, the rest shipped in bulk to mixed fertilizer plants of Davison and other producers. Both pulverized and granulated material will be available.

Continuous Operation

The plant will operate continuously, 21 shifts a week, employing 200 with an annual payroll of about $800,000.

Consolidated Engineering Corp., Baltimore, were construction contractors with the Dorr Co., Stamford, Conn., acting as architect-engineers.

The plant is operating under Davison's Florida Phosphate division, Dr. Allen T. Cole, manager, and sales are handled through the company's Heavy Chemicals department at Baltimore, headed by William Caspari, Jr., general sales manager. ◆

The Pesticide Situation 1953-54

Fairly large overall supply, ample production capacity for major items and generally slow advance ordering. This briefly summarizes the general outlook for the 1953-54 pesticide situation prepared by H. H. Shepard, Commodity Stabilization Service, Mobilization Activities division, USDA.

In the report, Shepard points out that although diversion of 1954 acreage to crops other than cotton, wheat and corn is likely to affect pesticide consumption locally, from an overall point weather often influences infestations much more than could the acreage shifts.

Some crops planted on diverted acres, he continues, will themselves require pesticides and some growers will probably use more pesticides per acre to boost their production rate.

Effects of the 1953 inflated pesticide inventory are still felt as producers seem to have exerted more caution in their 1954 production plans, a situation especially noticeable with DDT and BHC.

Here are some of the facts, figures and estimates presented by Shepard on a number of major pesticide materials.

Insecticides

DDT. Production from Oct. 1, 1953, through February, 1954, was up 16 per cent over the same period of the previous year. This was probably due to some extent to an increase in foreign orders. Contract sales for domestic consumption were reported fair.

BHC. Production (gamma basis, not including lindane) for the same period as DDT was 33 per cent below the previous corresponding period. Lindane production for 1952-53 was also very low, according to limited available information —possibly down to one million pounds.

Aldrin, dieldrin and **heptachlor.** These are in good supply. **Endrin** is expected to be produced in somewhat larger quantities this year, especially for use on tobacco. Over 30 million pounds of **toxaphene** were believed to be used in 1953.

Despite drought conditions, overall consumption of cotton insecticides increased in 1953 and probably reduced local stocks of formulations.

Chlordane. Domestic disappearance was about six million pounds in 1953.

DDD consumption was about three times greater in 1953 than in 1951. Steady growth in use has occurred in recent years.

Methoxychlor. Indications are that consumption is expanding.

Parathion. Disappearance in 1953 declined, possibly in part because formulator and dealer inventories were being consumed and to some extent because of competition from other organic phosphates.

TEPP. Apparent consumption has dropped steadily since high in 1951, despite new uses.

Malathion. Should be in considerable demand by formulators this year.

Lead Arsenate. Consumption may have reached minimum that will remain fairly uniform for a few years.

Calcium Arsenate. Although effective for boll weevil, other materials are more versatile and are expected to replace the arsenate, perhaps completely, in the future.

Cryolite. Significant quantities are consumed annually. A considerable proportion is used in Louisiana when sugarcane borer infestations are heavy.

Pyrethrum. Imports have been fairly uniform for four seasons. Large East African growers' association has indicated that ample supplies will be available from that area during the next few years. Appreciable quantities of 0.9 per cent flowers are again coming from Japan.

Production of Some Major Pesticides, 1949-1953

Pesticide	1949	1950	1951	1952	1953[1]
	Thous. lb.	Thous. lb.	Thous. lb.	Thous. lb.	Thous. lb.
Benzene hexachloride (gross)	27,937	76,698	116,988	86,290[2]	61,000[2]
Benzene hexachloride (gamma equivalent)	3,787	10,200	17,100	14,000[2]	10,650[2]
Calcium arsenate	16,006	45,348	40,900	7,634	7,260
Copper sulfate	158,000	174,600	213,872	189,016	145,434
2,4-D (acid basis)	n.a.[3]	14,156	17,671	30,718	25,215
2,4-D (esters)	8,562	9,416	11,592	21,108)	19,852
2,4-D (salts)[4]	4,289	2,212	5,532	3,933)	
DDT	37,904	78,150	106,139	99,929	83,981
Lead arsenate	16,866	39,434	25,416	14,286	14,196
2,4,5-T (acid basis)	n.a.[3]	n.a.[3]	2,456	3,398	5,112

[1] Preliminary figures. [2] Estimated from incomplete information; includes lindane.
[3] Not available. [4] Sodium and amine salts.
Source: U. S. Tariff Commission; U. S. Bureau of the Census; U. S. Bureau of Mines.

You'll Sell More in '54! when you sell Pittsburgh PARATHION WP

FIELD-TESTED CHEMICALS . . . backed by AGGRESSIVE PROMOTION !

If you're well stocked with *Pittsburgh* Parathion WP, you'll ring up bigger insecticide sales this season! For no other insecticide offers your customers such positive control over such a wide range of fruit, vegetable and forage crop insects. And with *Pittsburgh* Parathion WP, you get these four big *plus* sales features. (1) Top quality and fast deliveries, guaranteed by our *basic* position. (2) A new, safer, dustless formulation which prevents excessive billowing in handling. (3) A formulation that has been *field-tested* in your area. (4) A complete advertising program to back up your sales. Any way you look at it, *Pittsburgh* is your best bet if you're out to "Sell More in '54!" Write for more details today!

W&D 5168

Standard for Quality

ORGANIC INSECTICIDES: Benzene Hexachloride, Toxaphene, and DDT.

ORGANIC PHOSPHATE INSECTICIDES: Parathion Wettable Powders, Parathion Liquid Concentrate, Systox.

WEED KILLERS: 2,4-D Acid, 2,4-D Amine Concentrates, 2,4-D Ester Formulated Concentrates, D4 (Low Volatile 2,4-D Ester), C4 Pre-Emergence Weed Killer, 2,4,5-T Formulations.

COTTON SPRAYS AND DUSTS, AND OTHER SPECIAL AGRICULTURAL CHEMICALS.

AGRICULTURAL CHEMICALS DIVISION

PITTSBURGH COKE & CHEMICAL CO.

COAL CHEMICALS • AGRICULTURAL CHEMICALS • FINE CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • P'G IRON

Allethrin. The insecticide is in adequate production for any conceivable demand. Production in 1953 was from 50,000 to 60,000 pounds.

Rotenone bearing roots. Imports were about 25 per cent higher during 1952-53 crop year than in previous year. Reports indicate a rather tight supply in cube root.

Nicotine. Domestic consumption for five seasons has remained rather steady at about a half-million pounds. Adequate supplies are expected for 1954.

Ryania. Somewhat short for Louisiana sugar cane borer control in 1953. Fresh supplies of South American wood, imported last fall, are expected to be sufficient for 1954 demand.

Fungicides

Copper sulfate. Production and shipment in 1953 were at lowest level for over a decade; exports were down to 1950 level. Agricultural sales were below normal throughout most of 1953, but have increased considerably since late February, 1954.

Mercury Compounds. Production in 1951-53 consumed about 26 per cent more mercury than in the 1948-50 period. Present annual requirement appears to be between 500,000-600,000 pounds. Significant tightening of mercury supplies was reported during recent months.

Ground Sulfur. Requirements are at same level as 1953; supplies are believed adequate for domestic needs. Application to cotton, alone or in mixtures, appears to have declined from about 110 million pounds in 1950 to less than 70 million in 1953.

Dithiocarbamates. Domestic requirements are set at about 20 million pounds. Although capacity for production for agricultural use was increased in 1952, there does not appear now to be much in excess of domestic and export demand.

Captan. New facilities at Perry, O., will eventually make possible two to three times the previous production.

Glyodin. Consumption is increasing rather rapidly but capacity for production appears appreciably greater than 1954 requirements.

Herbicides

Exports of weed killers in 1952 and 1953 averaged nearly 11 million dollars annually, 59 per cent to Canada, about seven per cent to Cuba, 21 per cent elsewhere in the Western Hemisphere and only 13 per cent for the remainder of the world.

Sodium chlorate. This is a sterilant and one of the leading cotton defoliants. Industry estimate for 1952 shows that 47 per cent of domestic consumption went into herbicides, seven for defoliation from a total usage of 47,520,000 pounds. From one-fourth to one-third of the weed killer use is on railroad rights-of-way and similar locations. Production in 1952 was 88 million pounds. Capacity is expected to reach 145 million by 1955.

Borates. Total agricultural requirement, including that for soil amendment, is probably about 50 million pounds calculated as borax.

Sodium Arsenite. Overall consumption is about 4,500,000 pounds, a large proportion of which is used along railroad rights-of-way.

2,4-D. Formulations in addition to sodium salt reported by the U. S. Tariff Commission to have been produced in 1952 and 1953 include: Volatile esters—ethyl, isopropyl, n-Butyl, sec-Butyl, N-Amyl; Low-vol esters—Butoxyethanol, Butoxypropyleneglycol, Iso-octyl, Tetrahydrofurfuryl; Amines—Dimethylamine, Diethanolamine, Triethanolamine, and Isopropanolamine.

2,4,5-T. Disappearance in 1953 rose rather abruptly. 2,4-D remained at about the same level.

MCP. Has aroused much interest in past year. Three domestic manufacturers are believed now to be producing it.

Sodium2, 4-dichlorophenoxyethyl sulfate (Crag Herbicide 1). Was in partial production at new Niagara Falls plant late in 1953.

TCA. Three producers have ample capacity.

Chloro-IPC. 1954 supplies are expected to be ample.

Soil Fumigants

Usage increased rapidly during recent years and overall domestic consumption of liquid soil fumigants is probably at least 25 million pounds. ◆

Major Pesticides, Disappearance & Requirements

Pesticide	Domestic disappearance at producers' level				Requirements for consumption in 1953-54
	1949-50	1950-51	1951-52	1952-53	
	Thous. lb.	Thous. lb.	Thous. lb.	Thous. lb.	Thous. lb.
Benzene hexachloride[2]	8,548	9,600	11,067	7,085	8,000- 11,000
Calcium arsenate	38,842	39,583	4,735	7,000	8,000- 20,000
Chloro IPC	—	—	100	1,200	1,000- 1,500
Copper sulfate[3]	124,573	122,449	110,097	79,852[5]	100,000-125,000
2,4-D (acid basis)	17,600	23,494	25,298	26,122	26,000- 28,000
DDT	57,638	72,688	70,074	52,748	60,000- 80,000
Lead arsenate	27,490	30,174	17,452	16,000	16,000- 30,000
Parathion	2,551	4,670	4,511	3,000	3,000- 4,000
Pyrethrum (flowers)[4]	9,373	7,098	6,729	8,113	7,000- 8,000
Rotenone (roots)[4]	9,846	7,027	3,520	4,468	4,000- 5,000
Sulfur, ground[3]	538,592	401,342	312,000	n.a.	300,000-400,000
2,4,5-T (acid basis)	1,261	2,822	2,937	4,645	4,000- 5,000
Tetraethyl pyrophosphate	969	1,711	781	460	350- 500

[1] All figures are thousands of pounds; some are based on incomplete information; the crop year is from Oct. 1 to Sept. 30 of the following year.
[2] Gamma isomer basis; includes lindane.
[3] For all domestic uses, including industrial; calendar year basis.
[4] Imports; includes advanced (powdered).
[5] Preliminary.

DAVISON

GRANULATED
SUPERPHOSPHATE
offers 3 way Control
1. STORAGE CONTROL—will not cake or lump while in storage.
2. APPLICATION CONTROL—drills free and even . . . does not bridge over in the drill.
3. FOOD CONTROL-supplies uniform amount of plant food at desirable rates.

Davison's Granulated Superphosphate with 3-way control can mean added sales for you!

No longer is it necessary for you or the farmer to worry about lumping or caking . . . Davison's Granulated Superphosphate will store without becoming hard or caked. And when the farmer starts to apply Granulated Superphosphate in the field he will find there is no dusting nor will it bridge over in the drill. Granulated Superphosphate drills freely and evenly giving complete coverage. Because of the granular structure, plant food is released at desirable rates.

For added sales points be sure to get *Davison's Granulated Superphosphate with the 3-way control!*

Progress Through Chemistry

THE DAVISON CHEMICAL CORPORATION

Baltimore 3, Maryland

PRODUCERS OF: CATALYSTS, INORGANIC ACIDS, SUPERPHOSPHATES, PHOSPHATE ROCK, SILICA GELS, SILICOFLUORIDES AND FERTILIZERS.

Fertilizer Consumption in the United States 1952-53

By
Walter Scholl, Hilda M. Wallace & Esther I. Fox

FERTILIZER AND AGRICULTURAL LIME SECTION
SOIL AND WATER CONSERVATION RESEARCH BRANCH
AGRICULTURAL RESEARCH SERVICE
U. S. DEPARTMENT OF AGRICULTURE
BELTSVILLE, MARYLAND

FERTILIZER consumption in the United States, including the Territories (Hawaii, Puerto Rico, Alaska) for the year ended June 30, 1953, amounted to 23,412,608 tons. This quantity represents an increase of 4.4 per cent or 980,190 tons more than the 22,432,418 tons consumed in the 1951–52 season.

Materials Consumed

In 1952–53, of the total consumed, 15,722,224 tons were mixed fertilizers, 6,812,897 tons were separate materials containing primary nutrients (N, P_2O_5, K_2O) and 877,487 tons were secondary and trace element materials having no primary nutrients. The consumption of these classes of fertilizers were 4.2 per cent, or 635,875 tons; 3.8 per cent, or 251,878 tons and 11.8 per cent, or 92,437 tons more than the corresponding classes for the 1951–52 season.

Fertilizers consumed in 1952–53 contained a total of 5,648,016 tons of primary nutrients. This is 445,013 tons (8.6 per cent) more than the revised total of 5,203,003 tons consumed in 1951–52. Fertilizers consumed in 1952–53 contained 1,637,056 tons of nitrogen, 2,270,750 tons of available P_2O_5 and 1,740,210 tons of K_2O.

Net Increase

These quantities represented a net increase for nitrogen of 214,896 tons (15.1 per cent), for available P_2O_5 71,374 tons (3.2 per cent) and for K_2O 158,743 tons (10 per cent) over 1951–52. The total content of P_2O_5 in all fertilizers consumed was 2,767,990 tons. The weighted average total primary nutrient content in all mixed fertilizers consumed in 1952–53 was 25.85 per cent as compared with 24.86 per cent in 1951–52. For all fertilizers containing primary nutrients, it was 25.06 per cent in 1952–53 as compared with 24.04 per cent in 1951–52.

The tabulations presented herein were prepared from reports submitted by manufacturers to the Fertilizer and Agricultural Lime section, showing the number of tons of fertilizer shipments for consumption in agriculture throughout the 48 states and the territories. Sup-

Presenting

THE MOST MODERN BAG PRINTER

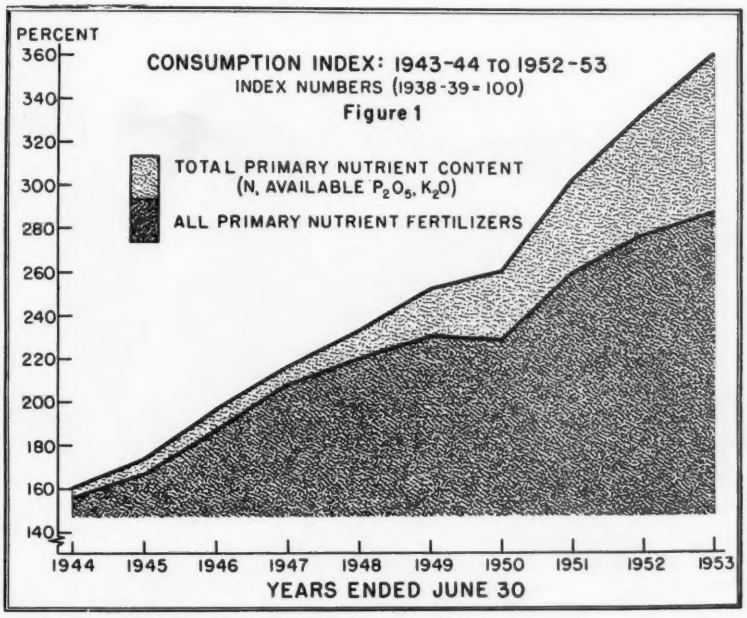
Manufactured in
One, Two, Three and Four Colors for printing made up bags of Paper, Cotton and Burlap, new or used.

Let us send you complete information with descriptive literature.

SCHMUTZ
MFG. CO.
18th and Main Streets
Zone 3
Louisville, Ky.

Cable Address "SCHMUTZ"—Long Distance Phone CLAY 7771

plementary information was furnished by the state fertilizer control officials and agronomists. All of this assistance is gratefully acknowledged. The word "ton" means the short ton of 2,000 pounds.



Consumption

The total consumption of the two principal classes of fertilizers, mixtures and materials, is summarized by states and regions in Table 1. Although the use of fertilizers in 1952–53 for the United States as a whole showed a net gain of 4.4 per cent over 1951–52, consumption in 14 states and Puerto Rico was from one to 15 per cent below 1951–52. In most of the states of the New England and South Central regions, consumption of fertilizers was below the level established in 1951–52 for both mixtures and materials. In Kentucky and Tennessee, however, consumption of materials was higher than in 1951–52, while in Louisiana consumption of mixtures was higher. The total consumption for these states, nevertheless, was below that of 1951–52. Total consumption in three states of these regions, Arkansas, Connecticut and New Hampshire was equal to or above their consumption in 1951–52.

Percentage Increase

The percentage increase in consumption averaged highest in the West North Central region, followed by the East North Central, Mountain and Pacific regions, in the order named. Consumption of primary nutrient fertilizers in states of these regions rose from one to 72 per cent with average increases for these regions of 20, 12, 10 and nine per cent, respectively. In tonnage of primary nutrient fertilizers, increases were highest for the East and West North Central regions. Consumption in these regions was 548,341 tons and 344,457 tons above their 1951–52 consumption, respectively.

In the South Atlantic region where the largest tonnage of primary nutrient fertilizers is used, increases in consumption have grown smaller during the past three years. Consumption in 1950–51 was 582,997 tons above the 1949–50 level, in 1951–52, it was but 178,750 tons above 1950–51 and in 1952–53, it was but 93,534 tons above 1951–52.

Mixtures

The total of all mixed fertilizers consumed in the United States and territories amounted to 15,722,224 tons comprising 1,439 grades reported by their guaranteed analyses and approximately 300 grades, the guaranteed analyses of which were not reported. Consumption of mixed fertilizers in 1952–53 was 635,875 tons (4.2 per cent) more than the 15,086,349 tons consumed in 1951–52. The quantity of mixtures consumed in the current year also represents 67.15 per cent of all fertilizers consumed in the United States and the Territories.

177 Grades

The grades of mixed fertilizers reported consumed in amounts of 2,500 tons or more in Continental U. S. in 1952–53 and their consumption in 1951–52 are shown in Table 2. There were 177 of these grades, totaling 15,066,403 tons in 1952–53 and accounting for 97.49 per cent of the total quantity of mixtures consumed in Continental U. S. Other grades, numbering 1,149, totaling 258,881 tons and approximately 300 grades, not reported by their guaranteed analyses and totaling 128,663 tons, were also consumed. In addition, 268,272 tons, not included in Table 2, were consumed in the territories. Grades consumed in the territories are not included in Table 2, because those consumed in Hawaii were reported in fractional numbers and the principal grades consumed in Puerto Rico were not the kind generally used in Continental U. S.

Favored Grades

The four grades most favored in Continental U. S. were 3–12–12, 5–10–10, 5–10–5 and 3–9–6, in the order named. The total tonnage of these grades amounted to 4,905,332 tons and accounted for nearly 32 per cent of the total mixtures consumed in Continental U. S. Only the 5–10–10 grade was consumed in larger tonnage in 1952–53 than for 1951–52. The tonnages of the other three were less than their tonnages in 1951–52.

The 15 principal grades consumed in each region during the current year are listed in Table 3, with their consumption in each of the respective states of the region. The total tonnage of these 15 grades represents 59 per cent or more of the consumption of mixed goods in each of the regions. With the exception of California and Florida, the number of grades reported by their guaranteed analysis

First In The Field!

The Tennessee Corporation, with extensive research and experience in the fertilizer field, has pioneered in the use of **SUL-FON-ATES** in accelerated curing processes. The proper use of **SUL-FON-ATES** in making fertilizer requires technical skill, and only Tennessee Corporation has approached the problem from a technical angle. With our chemical as well as fertilizer background, we can conduct controlled plant tests for you to help you acquire the exacting technical "know how." Now is the time for plant tests. We will gladly send an experienced technician to work with you and give you an adequate understanding in the proper use of speedy, economical Tennessee **SUL-FON-ATE** in your plant.

ORGANIC CHEMICALS DIVISION

TENNESSEE TC TENNESSEE CORPORATION **CORPORATION**

617-29 Grant Building, Atlanta, Georgia

Table 1. - Consumption of Fertilizers, Year Ended June 30, 1953[1/]

State & Region	Mixtures			Materials[2/]			All Fertilizers 1952-53	Relative Consumption 1951-52 = 100	
	July 1 - Dec. 31, 1952	Jan. 1 - June 30, 1953	Total	July 1 - Dec. 31, 1952	Jan. 1 - June 30, 1953	Total		Fertilizers [3/]	Total N, Avail. P_2O_5 & K_2O
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Percent	Percent
Maine	25,685	175,762	201,447	2,966	7,073	10,038	211,485	99	101
New Hampshire	1,897	13,404	15,301	988	5,166	6,154	21,455	102	110
Vermont	11,197	24,251	35,448	7,444	6,881	14,325	49,773	89	91
Massachusetts	9,646	58,446	68,092	4,949	12,332	17,281	85,373	93	94
Rhode Island	1,365	11,989	13,354	530	1,627	2,157	15,511	93	93
Connecticut	4,900	55,024	59,924	4,064	23,680	27,744	87,668	100	101
New England	54,690	338,876	393,566	20,940	56,759	77,699	471,265	97	99
New York	118,413	399,107	517,520	49,698	92,325	142,023	659,543	104	106
New Jersey	56,751	192,747	249,498	8,441	19,487	27,928	277,426	105	106
Pennsylvania	164,575	443,588	608,163	27,801	61,380	89,181	697,344	105	108
Delaware	16,067	69,633	85,690	940	4,254	5,194	90,884	113	120
District of Columbia	586	1,381	1,967	174	446	620	2,587	102	103
Maryland	76,461	204,650	281,111	7,973	14,601	22,574	303,685	102	106
West Virginia	14,742	55,353	70,095	4,934	12,248	17,182	87,277	87	89
Middle Atlantic	447,585	1,366,459	1,814,044	99,961	204,741	304,702	2,118,746	104	107
Virginia	173,786	564,647	738,433	26,625	88,375	115,000	853,433	97	100
North Carolina	223,771	1,303,751	1,527,522	77,774	296,344	374,118	1,901,640	98	99
South Carolina	115,665	595,039	710,694	54,041	211,196	265,237	975,931	100	100
Georgia	207,896	915,672	1,123,568	68,106	194,291	262,397	1,385,965	106	110
Florida	408,390	643,564	1,051,954	50,735	51,817	102,552	1,154,506	108	111
South Atlantic	1,129,498	4,022,673	5,152,171	277,281	842,023	1,119,304	6,271,475	102	104
Ohio	372,711	711,113	1,083,824	29,659	60,718	90,377	1,174,201	112	115
Indiana	267,268	758,179	1,025,447	57,036	123,310	180,346	1,205,793	111	118
Illinois	172,369	472,323	644,692	503,905	504,569	1,008,474	1,653,166	115	128
Michigan	198,953	384,491	583,444	16,807	47,725	64,532	647,976	110	114
Wisconsin	58,872	318,717	377,589	12,897	28,980	41,877	419,466	106	109
East North Central	1,060,173	2,654,823	3,714,996	620,304	765,302	1,385,606	5,100,602	112	118
Minnesota	30,170	176,677	206,847	17,222	43,640	60,862	267,709	119	120
Iowa	50,314	316,232	366,546	59,212	124,706	183,918	550,464	129	140
Missouri	156,229	312,642	468,871	170,575	194,248	364,823	833,694	111	118
North Dakota	4,260	14,704	18,964	6,543	14,988	21,531	40,495	129	138
South Dakota	693	7,128	7,821	2,134	6,668	8,802	16,623	147	175
Nebraska	11,284	38,145	49,429	30,223	66,250	96,473	145,902	154	161
Kansas	69,818	40,933	110,751	82,770	46,108	128,878	239,629	115	132
West North Central	322,768	906,461	1,229,229	368,679	496,608	865,287	2,094,516	120	130
Kentucky	81,710	376,870	458,580	54,472	101,147	155,619	614,199	97	103
Tennessee	85,230	332,379	417,609	60,200	102,102	162,302	579,911	96	100
Alabama	112,825	733,899	846,724	180,873	230,900	411,773	1,258,497	94	94
Mississippi	18,396	317,325	335,721	193,768	207,145	400,913	736,634	89	92
East South Central	298,161	1,760,473	2,058,634	489,313	641,294	1,130,607	3,189,241	94	96
Arkansas	21,590	175,374	196,964	49,677	119,425	169,102	366,066	102	109
Louisiana	31,717	148,414	180,131	54,599	84,123	138,722	318,853	96	99
Oklahoma	19,846	40,594	60,440	52,606	33,889	86,495	146,935	85	100
Texas	62,326	220,873	283,199	141,100	146,206	287,306	570,505	93	99
West South Central	135,479	585,255	720,734	297,982	383,643	681,625	1,402,359	95	102
Montana	720	3,199	3,919	6,847	15,257	22,104	26,023	112	113
Idaho	493	13,942	14,435	15,324	44,332	59,656	74,091	101	100
Wyoming	331	2,684	3,015	1,681	7,148	8,829	11,844	172	174
Colorado	3,215	15,653	18,868	8,690	20,992	29,682	48,550	102	98
New Mexico	782	1,767	2,549	8,846	16,396	25,242	27,791	144	150
Arizona	6,376	18,126	24,502	32,934	74,313	107,247	131,749	109	112
Utah	640	2,673	3,313	7,210	21,440	28,650	31,963	104	103
Nevada	154	556	710	2,780	7,533	10,313	11,023	123	132
Mountain	12,711	58,600	71,311	84,312	207,411	291,723	363,034	110	111
Washington	5,897	24,348	30,245	35,745	58,384	94,129	124,374	134	142
Oregon	3,139	16,291	19,430	56,199	72,340	128,539	147,969	126	122
California	86,801	163,791	249,592	670,834	831,318	1,502,152	1,751,744	104	105
Pacific	94,837	204,430	299,267	762,778	962,042	1,724,820	2,024,087	109	111
Continental U. S.	3,555,902	11,898,050	15,453,952	3,021,550	4,559,823	7,581,373	23,036,325	104	109
Hawaii	29,077	29,356	58,433	34,079	36,820	70,899	129,332	112	114
Puerto Rico	102,381	107,322	209,703	12,362	25,233	37,595	247,298	94	93
Alaska	0	136	136	0	517	517	653	116	116
Territories	131,458	136,814	268,272	46,441	62,570	109,011	377,283	99	100
Total U. S.									
1952-53	3,687,360	12,034,864	15,722,224	3,067,991	4,622,393	7,690,384	23,412,608	104	109
1951-52	3,533,404	11,552,945	15,086,349	2,856,958	4,489,111	7,346,069	22,432,418	100	100
1950-51	3,384,456	10,593,926	13,978,382	2,940,994	4,072,018	7,013,012	20,991,394	94	91

1/ Includes: Ground phosphate rock, basic slag, secondary and trace element materials, such as, borax, sulfur, manganese sulfate, etc., used as separate materials, also fertilizers distributed by Government agencies. Does not include liming materials, but includes gypsum.

2/ Excludes the quantities of materials used for manufacture of commercial mixtures.

3/ Fertilizers which were guaranteed to contain primary plant nutrients (N, P_2O_5, K_2O).

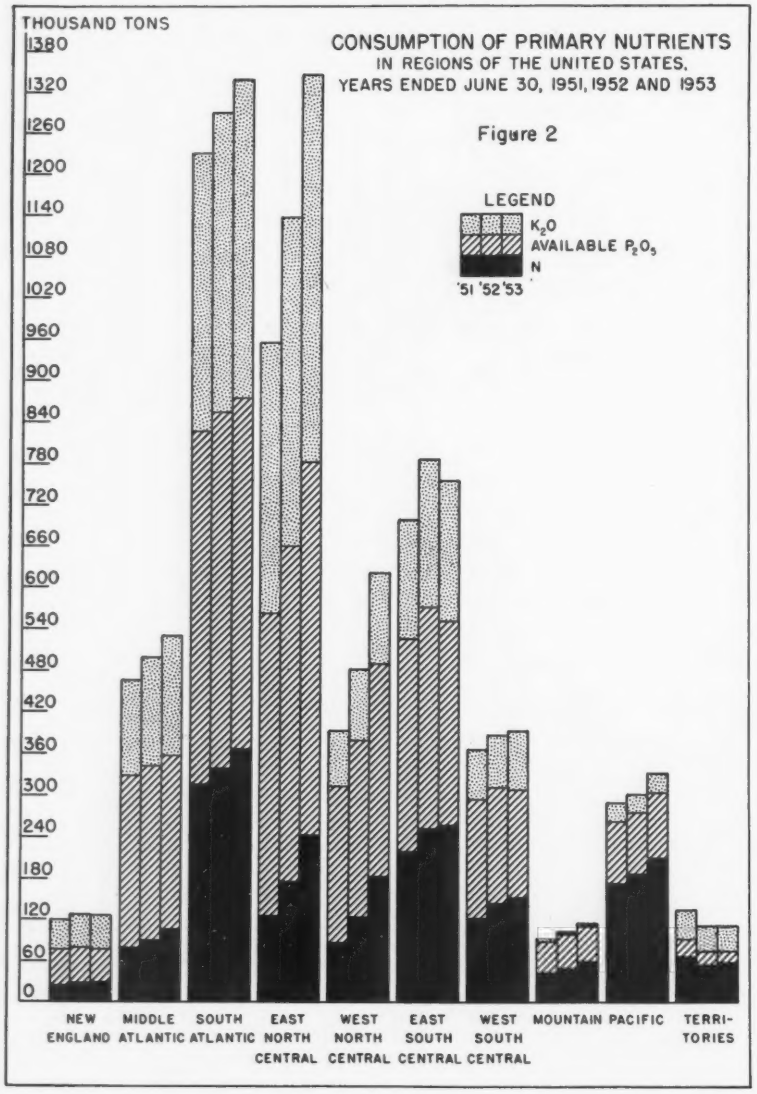
for each state averaged 57. California reported 317 grades and Florida, 774.

Complete Mixtures

The principal class of mixture customarily consumed in largest tonnage in United States is the so-called complete mixture, N-P-K. Nearly 90 per cent of the tonnage of all mixtures was of this class. While for P-K, N-P and N-K mixtures, consumption was approximately seven, two and one per cent of the total tonnage, respectively. The consumption of each of these classes in regions of United States is shown in Table 5. The N-P-K mixtures were consumed in largest tonnage in all regions excepting the Mountain region, where N-P mixtures are favored.

Nutrient Content

The national weighted average primary nutrient content of mixed fertilizers increased from 24.86 per cent in 1951–52 to 25.85 per cent in 1952–53. This average in 1952–53 comprised nitrogen, 4.63; available P_2O_5, 11.34 and K_2O, 9.88 per cent. The percentage of these nutrients in 1951–52 were 4.30, 11.14 and 9.42, respectively. In the current year, the average N, P_2O_5, K_2O content of mixtures increased 7.6, 1.8 and 4.9 per cent over the corresponding figures for 1951–52. The average nutrient content of all mixtures consumed in each state is shown in Table 7. Although the national average of mixtures shows a general trend upward in all nutrients, the average N content of mixtures consumed in Arizona, Idaho, Utah and Puerto Rico was lower. In 21 states, Hawaii and Puerto Rico, the concentration of available P_2O_5 was below that of 1951–52 while for 11 states and the territories the concentration of K_2O was lower. States in which the concentration of nitrogen was lower were all located in the Mountain region while 13 of the 21 states using mixtures averaging less P_2O_5 were east of the Mississippi and those averaging less K_2O were mostly located in the western half of the United States.



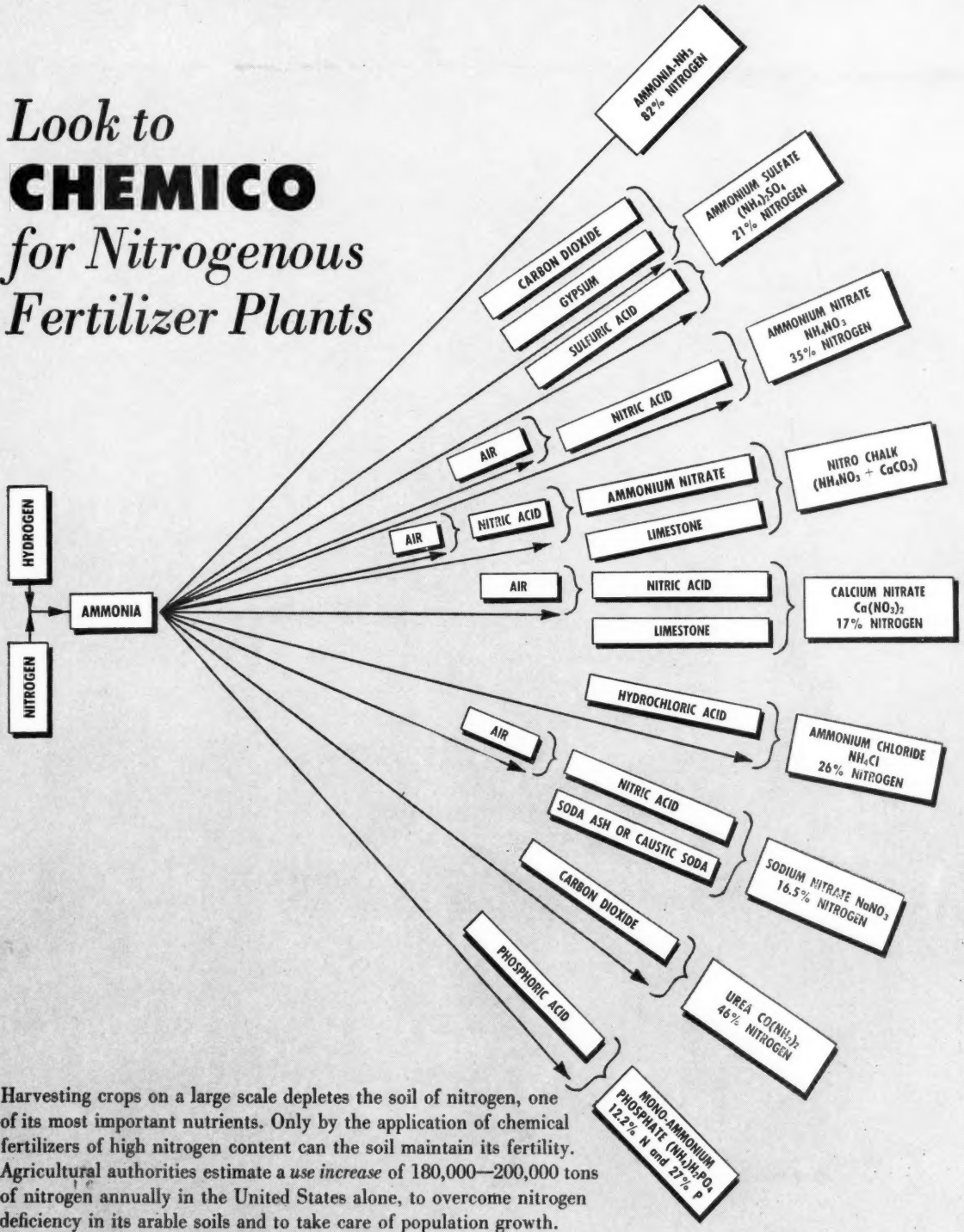
Materials

The national consumption of unmixed materials amounted to 7,690,384 tons in 1952–53. This quantity represents an increase of 344,315 tons or 4.7 per cent more than the 7,346,069 tons consumed in 1951–52. The total quantity of materials consumed in 1952–53 comprised 2,987,299 tons of chemical nitrogen materials, 359,037 tons of natural organics, 3,109,635 tons of phosphates including the ammonium phosphates, 356,926 tons of potassium materials including the potassium nitrate and potassium-sodium nitrate salts and 877,487 tons of secondary and trace element materials. The consumption of these classes are shown, by states and regions, in Tables 4 and 5.

Principal Changes

The principal changes in the national consumption from 1951–52 in chemical nitrogen materials were the increases in ammonium nitrate-limestone mixtures, 162,328 tons (63.0 per cent); anhydrous ammonia, 48,909 tons (29.1 per cent) and calcium cyanide, 39,965 tons (94.6 per cent). Sodium nitrate decreased 34,278 tons (five per cent). Of the phosphate materials, basic slag decreased 90,237 tons (23 per cent) and normal superphosphates, 177,463 tons (14.5 per cent) while the ammonium phosphates increased 30,911 tons (13.2 per cent) and triple superphosphates, 23,791 tons (10.6 per cent). In potassium materials, the 60 per cent grade of potassium chloride in-

Look to **CHEMICO** *for Nitrogenous Fertilizer Plants*



Harvesting crops on a large scale depletes the soil of nitrogen, one of its most important nutrients. Only by the application of chemical fertilizers of high nitrogen content can the soil maintain its fertility. Agricultural authorities estimate a *use increase* of 180,000—200,000 tons of nitrogen annually in the United States alone, to overcome nitrogen deficiency in its arable soils and to take care of population growth.

The Chemico organization is specially qualified to design and construct plants for the production of ammonia and nitrogenous fertilizers of all types. It offers a world-wide service backed by 40 years of experience.

NOTE: Formulae and percentages are on a theoretical basis. Fertilizers are produced in various grades.

CHEMICAL CONSTRUCTION CORPORATION

A UNIT OF AMERICAN CYANAMID COMPANY

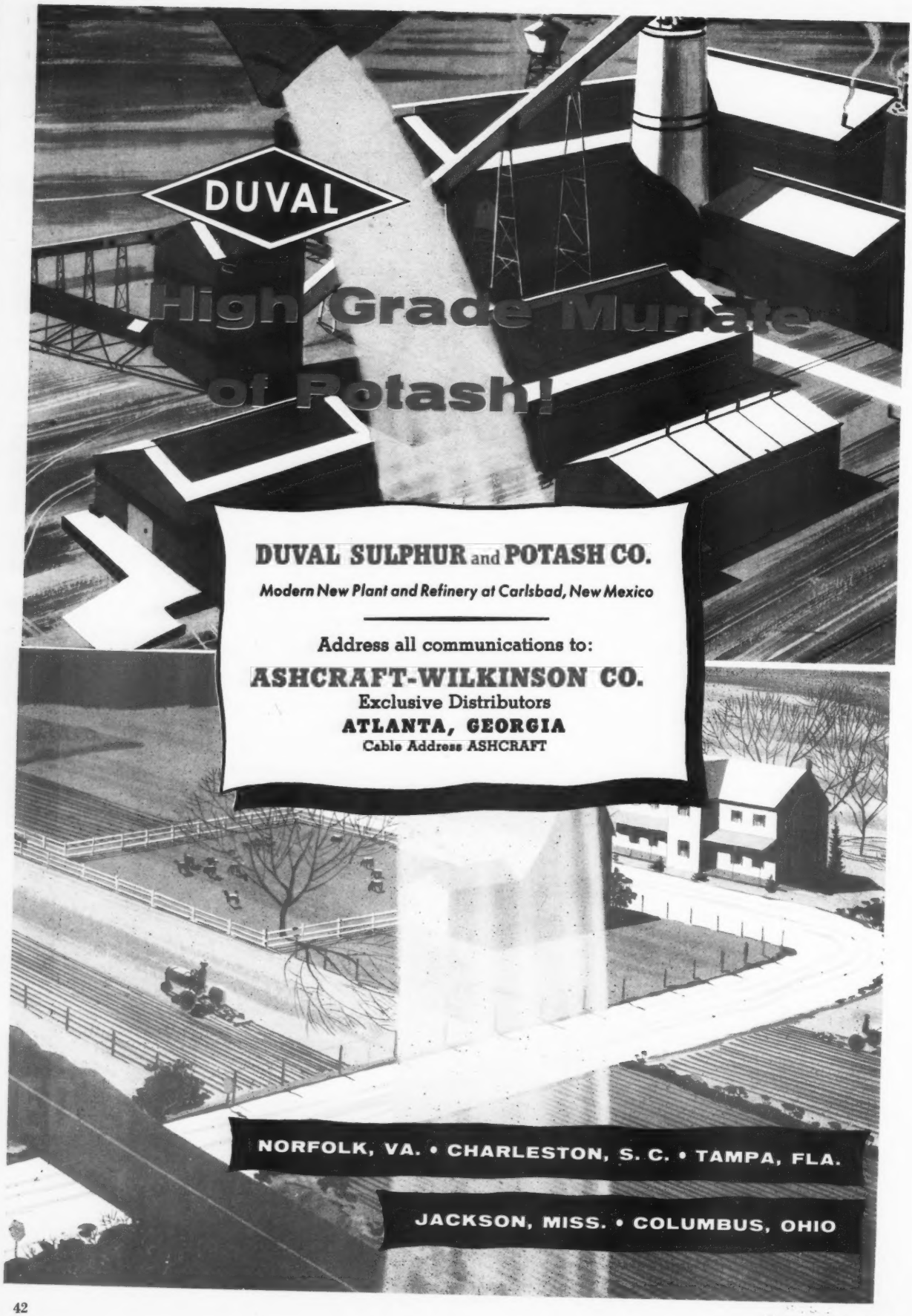
488 MADISON AVENUE, NEW YORK 22, N. Y.

CABLES: CHEMICONST, NEW YORK

TECHNICAL REPRESENTATIVES: CYANAMID PRODUCTS LTD., LONDON • CHEMICAL CONSTRUCTION (INTER-AMERICAN) LTD., TORONTO • SOUTH AFRICAN CYANAMID (PTY) LTD., JOHANNESBURG

CC-254

Chemico plants are profitable investments


DUVAL
High Grade Muriate of Potash!
DUVAL SULPHUR and POTASH CO.
Modern New Plant and Refinery at Carlsbad, New Mexico
Address all communications to:
ASHCRAFT-WILKINSON CO.
Exclusive Distributors
ATLANTA, GEORGIA
Cable Address ASHCRAFT
NORFOLK, VA. • CHARLESTON, S. C. • TAMPA, FLA.
JACKSON, MISS. • COLUMBUS, OHIO

creased 48,179 tons (38.8 per cent) while the 50 per cent grade decreased 12,290 tons (10 per cent).

Weighted Averages

The weighted average primary nutrient content of the principal classes of materials consumed is given by states in Table 7. These averages are based on the composition and amount of the individual material coming within the class. The data show the average quality of the materials composing the class. The national nutrient average, in per cent, of materials that contain only nitrogen was 28.54; those containing only P_2O_5, 14.48 (available P_2O_5); only K_2O, 51.89 and those having more than one nutrient 21.96. The corresponding averages for these classes in 1951–52 were 27.96 (revised), 14.71, 49.98 and 20.97 per cent, respectively. With the exception of the class containing only P_2O_5 the national averages for all the other classes in the current year were higher than in 1951–52 reflecting the greater use of higher quality materials. The drop in the average concentration of P_2O_5 materials was the result of the large decrease in consumption of basic slag and normal superphosphates and only a relatively small increase in use of triple superphosphates.

Primary Nutrients

The national consumption of primary nutrients (Table 6) during the year ended June 30, 1953, was nitrogen, 1,637,056; available P_2O_5, 2,270,750 (total P_2O_5, 2,767,990) and K_2O, 1,740,210 tons. These quantities represented net increases over 1951–52 in nitrogen of 214,896 tons, available P_2O_5, 71,374 tons (total P_2O_5, 89,920 tons) and K_2O, 158,743 tons. Consumption of primary nutrients was, therefore, 15.1, 3.2 (3.4) and 10 per cent greater than in 1951–52, respectively.

The amounts and proportions of the total quantity of nutrients consumed as mixed fertilizers were 728,095 tons or 44.5 per cent of the nitrogen, 1,782,286 tons (78.5 per cent) of the available P_2O_5, 1,920,472 tons (69.4 per cent) of the total P_2O_5 and 1,554,001 tons (89.3 per cent) of the K_2O. In 1952–53, the amounts consumed in mixed fertilizers were nitrogen, 12.3 per cent; available P_2O_5, six per cent; total P_2O_5, 6.3 per cent and K_2O, 9.4 per cent greater than in 1951–52.

P_2O_5 Down

While the amounts of nutrients consumed in materials were 17.4 and 15.6 per cent greater for nitrogen and K_2O, respectively, they were 5.8 and 2.8 per cent less for available P_2O_5 and total P_2O_5, respectively, than in 1951–52. Total primary nutrients consumed in 1951–52 and in 1952–53 were 5,203,003 tons (revised) and 5,648,016 tons, respectively, an increase of 445,013 tons or 8.6 per cent in comparison with the increase of 4.1 per cent for tonnage of fertilizers containing these nutrients. This reflects the trend toward higher analysis fertilizers as evidenced by consumption surveys made over the past 10 years and, as diagrammatically shown in figure 1. The spread between the curves representing consumption of fertilizers

Table 2. - Consumption of Principal Mixed Fertilizers in the Continental United States, By Grades, Years Ended June 30, 1953 and 1952

Grade	Consumption		Proportion of Total		Grade	Consumption		Proportion of Total	
	1952-53	1951-52	1952-53	1951-52		1952-53	1951-52	1952-53	1951-52
	Tons	Tons	Percent	Percent		Tons	Tons	Percent	Percent
0-8-24	4,026	4,510	.03	.03	6-6-9	3,012	9,105	.02	.06
0-9-27	26,497	35,000	.17	.24	6-6-10	2,542	1,121	.02	.01
0-10-10	3,194	4,535	.02	.03	6-6-12	4,637	1,754	.03	.01
0-10-20	62,187	61,740	.40	.42	6-6-18	9,729	6,245	.06	.04
0-10-30	35,324	22,923	.23	.16	6-7-7	8,224	4,454	.05	.03
0-10-45	2,795	3,023	.02	.02	6-8-4	215,173	230,886	1.39	1.56
0-12-12	123,881	191,120	.80	1.29	6-8-6	259,370	265,883	1.65	1.78
0-12-16	3,260	2,080	.02	.01	6-8-8	274,168	269,655	1.77	1.82
0-12-20	25,963	26,957	.17	.18	6-8-12	42,688	43,825	.28	.30
0-12-36	6,076	4,243	.04	.03	6-8-16	2,672	1,302	.02	.01
0-14-5	3,862	3,901	.02	.03	6-8-3	6,485	6,401	.04	.04
0-14-7	76,332	141,094	.49	.95	6-9-6	13,839	13,743	.09	.09
0-14-10	25,786	43,516	.17	.29	6-9-9	8,171	9,779	.05	.07
0-14-14	266,386	329,421	1.72	2.22	6-9-12	70,840	69,546	.46	.47
0-15-15	31,758	16,175	.21	.11	6-10-4	59,226	61,880	.38	.42
0-16-30	12,865	3,310	.08	.02	6-10-10	2,629	1,662	.02	.01
0-16-8	9,208	6,241	.06	.04	6-12-4	3,026	4,252	.02	.03
0-16-16	5,927	6,928	.04	.05	6-12-6	53,094	58,867	.34	.38
0-19-19	2,878	1,599	.02	.01	6-12-12	165,585	136,468	1.07	.92
0-20-10	28,770	41,248	.19	.28	6-12-18	3,972	400	.03	(1/)
0-20-20	304,969	231,247	1.97	1.56	6-24-0	30,626	23,896	.20	.16
0-24-24	3,107	1,679	.02	.01	6-24-12	22,506	10,830	.16	.07
0-30-15	3,528	3,842	.02	.03	6-24-24	6,316	3,242	.04	.02
0-30-30	6,532	1,976	.04	.01	6-30-0	2,525	3,101	.02	.02
2-8-10	4,164	6,204	.03	.04	7-5-7	2,578	61	.02	(1/)
2-10-6	7,797	7,310	.05	.05	7-5-11	3,914	29	.03	(1/)
2-12-6	155,610	317,686	1.01	2.15	7-7-7	38,202	37,204	.25	.25
2-12-12	409,203	402,717	2.65	2.72	7-9-9	3,911	---	.03	---
2-16-8	3,500	13,401	.02	.09	8-0-8	15,061	15,194	.08	.10
3-6-6	6,442	13,865	.04	.09	8-0-12	10,127	1,664	.07	.01
3-6-6	16,866	27,331	.11	.18	8-0-24	16,523	21,826	.12	.18
3-9-6	671,214	800,236	4.34	5.40	8-4-4	2,978	3,392	.02	.02
3-9-9	456,699	407,638	2.96	2.75	8-4-8	11,439	11,687	.07	.08
3-10-12	37,745	43,454	.24	.29	8-4-12	5,961	669	.03	(1/)
3-6-10	7,081	4,571	.05	.03	8-6-2	2,861	2,879	.02	.02
3-9-18	154,542	163,389	1.00	1.24	8-6-4	3,835	4,522	.02	.03
3-9-27	118,009	79,571	.76	.54	8-6-6	4,931	6,152	.03	.04
3-10-8	5,068	404	.03	(1/)	8-6-8	7,722	10,128	.05	.07
3-10-10	3,496	5,660	.02	.04	8-8-4	20,192	21,323	.13	.14
3-10-12	7,715	10,230	.05	.07	8-8-8	342,242	286,142	2.21	1.93
3-12-6	478,357	662,544	3.10	4.47	8-9-12	4,697	3,393	.03	.02
3-12-12	2,241,137	2,291,712	14.50	15.41	8-10-12	13,361	11,516	.09	.08
3-18-9	114,515	107,907	0.74	.73	8-12-12	15,514	12,371	.10	.08
4-6-7	2,701	2,766	.02	.02	8-12-16	34,869	28,626	.23	.19
4-6-8	6,126	7,715	.04	.05	8-16-8	7,580	4,740	.05	.03
4-6-8	17,290	12,356	.11	.08	8-16-16	67,240	43,076	.44	.29
4-8-8	51,267	71,542	.33	.48	8-24-8	106,141	63,519	.69	.43
4-7-5	130,503	119,312	.85	.81	8-32-0	53,376	33,111	.34	.22
4-7-7	8,272	60	.05	(1/)	9-6-6	5,632	554	.04	(1/)
4-8-4	13,736	16,439	.09	.11	9-7-4	12,174	8,218	.08	.06
4-8-8	481,175	531,564	3.11	3.59	9-9-9	8,737	4,859	.06	.09
4-8-8	330,422	263,273	2.14	1.78	9-15-3	4,056	2,065	.03	.01
4-8-10	63,485	39,621	.41	.27	10-0-10	34,796	30,153	.22	.20
4-8-12	79,126	91,650	.50	.62	10-4-10	3,613	4,636	.02	.03
4-9-3	77,400	81,960	.50	.55	10-5-5	3,151	1,364	.02	.01
4-10-6	581,558	622,084	3.76	4.20	10-5-10	3,295	1,414	.02	.01
4-10-7	527,094	506,254	3.41	3.43	10-6-4	38,403	32,755	.25	.21
4-10-7	5,094	5,177	.03	.03	10-10-0	16,397	18,908	.12	.13
4-10-10	9,636	7,464	.06	.05	10-10-5	37,547	36,721	.24	.26
4-12-4	192,110	247,563	1.24	1.67	10-10-10	400,380	139,392	2.59	.94
4-12-6	7,346	8,738	.05	.06	10-12-13	4,418	3,451	.03	.02
4-12-8	160,202	215,722	1.04	1.46	10-15-15	5,857	4,815	.04	.03
4-12-12	204,660	82,552	1.32	.56	10-16-8	13,468	10,600	.07	.07
4-12-16	3,036	3,889	.02	.03	10-20-0	121,300	94,676	.78	.67
4-16-0	25,382	42,397	.17	.29	10-20-13	23,234	12,756	.15	.09
4-16-8	71,295	62,940	.46	.42	10-20-20	2,900	1,702	.02	.01
4-16-16	473,308	215,224	3.06	1.45	10-30-13	6,391	11,366	.04	.08
4-24-12	81,256	86,290	.53	.58	12-0-12	12,584	9,078	.08	.06
5-3-6	2,503	3,339	.02	.02	12-0-12	10,307	6,841	.07	.05
5-5-8	7,561	10,385	.05	.07	12-6-6	4,449	217	.03	(1/)
5-6-8	7,782	7,490	.05	.05	12-6-8	2,813	1,897	.02	.01
5-8-10	6,143	5,131	.04	.04	12-12-6	3,283	999	.02	.01
5-7-5	25,977	18,877	.17	.13	12-12-12	72,967	32,076	.47	.22
5-7-10	5,092	7,355	.03	.05	12-24-0	8,880	8,355	.06	.06
5-8-7	19,706	23,291	.13	.16	12-24-12	36,391	24,932	.24	.17
5-8-8	4,532	3,942	.03	.03	13-13-13	15,786	287	.10	(1/)
5-10-5	877,240	908,353	5.68	6.13	14-0-14	30,352	25,601	.20	.17
5-10-10	1,115,741	863,320	7.22	5.83	14-14-0	5,008	9	.03	(1/)
5-10-15	33,221	10,338	.21	.07	15-0-12	3,078	2,367	.02	.02
5-10-16	15,318	10,539	.11	.07	15-0-14	2,579	1,047	.02	.01
5-10-20	3,744	3,448	.02	.02	15-8-4	14,483	11,229	.09	.08
5-15-15	22,931	9,442	.15	.06	15-15-0	32,404	7,124	.21	.05
5-15-15	4,084	11,420	.03	.08	16-0-16	2,672	125	.02	(1/)
5-15-30	4,023	3,257	.03	.02	17-7-0	34,307	27,487	.21	.19
5-20-10	17,117	19,312	.11	.13					
5-20-20	67,676	41,045	.67	.28	177 mixtures	15,066,403	14,438,505	97.49	97.50
6-3-6	22,114	22,159	.14	.15					
6-4-6	9,063	6,381	.06	.04	Other specified grades2/	258,986	281,685	1.68	1.90
6-4-8	14,588	10,504	.09	.07					
6-4-10	3,064	3,630	.02	.02	Grades not shown3/	128,663	88,314	.83	.60
6-4-12	3,533	38	.02	(1/)					
6-6-6	79,328	70,350	.51	.48	Total4/	15,453,952	14,808,504	100.00	100.00
6-6-8	16,968	19,732	.11	.13					

1/ Less than 0.01 percent.
2/ There were 1,149 in 1952-53 and 984 in 1951-52.
3/ There were, at least, 300 grades not shown by their guaranteed analysis.
4/ Does not include the quantity of mixtures consumed in the Territories.

Berkshire

. . . . . specialists in magnesia for agriculture

EMJEO (80/82% Magnesium Sulphate)
Calcined Brucite (fertilizer grade) 70% MgO
Calcined Magnesite 85 to 95% MgO

POTNIT
(95% Nitrate of Potash)
for
Special Mixtures and Soluble Fertilizers
Other Fertilizer Materials

INSECTICIDES—FUNGICIDES
Mercury Compounds
for Agricultural Use

DITHIOCARBAMATES
Ferric—Zinc

Export Import

Berkshire Chemicals, Inc.
420 Lexington Avenue, New York 17, N. Y.
Cable Address—"Berkskem" New York
Sales Agents for F. W. Berk & Company, Inc.

You can rely on U.S.I. for

CPR DUST—Combining pyrethrins, piperonyl cyclonene and rotenone for quick kill of a variety of insects with no hazardous residues.

ROTENONE—A "natural" insecticide with low toxicity. Especially useful on truck crops and fruit.

CIPC AND IPC CHEMICALS FOR HERBICIDES—Preemergent application controls narrow-leaf plants, particularly annual grasses in cotton and other crops.

ALLETHRIN — the new synthetic insecticide. Combines low toxicity with high efficiency—highly compatible with most insecticides.

PYRETHRUM—unit for unit, still the most versatile and effective insecticide ingredient available.

PIPERONYL BUTOXIDE—The most active of all synergists for pyrethrin, allethrin, and certain other chemicals.

PYRENONE* — blending piperonyl butoxide and pyrethrin for the most effective and economical formulations in a wide variety of combinations.

*Reg. U. S. Pat. Off., U.S.I.

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers Products Corporation
120 Broadway, New York 5, N. Y.
Branches in all Principal Cities
In Canada: Natural Products Corporation, Toronto and Montreal

FROM THE WORLD'S STOCKPILES—TO YOUR PLANT...

Woodward & Dickerson Inc. serves you
with an 80 year reputation for reliability in quality, price and delivery.

POTASH
MURIATE
SULPHATE
NITRATE

NITROGEN
SULPHATE OF AMMONIA
AMMONIUM NITRATE
CALCIUM AMMONIUM NITRATE
UREA

AND ALL OTHER **FERTILIZER** AND **FEED MATERIALS**

ESTABLISHED 1873
Woodward & Dickerson Inc.
1400 SOUTH PENN SQUARE, PHILADELPHIA 2, PA., U.S.A.
TELEPHONE: LOcust 4-5600 Cable Address: "Woodward" TELETYPE: PH109

containing primary nutrients and of that representing the nutrient content of the fertilizers has increased rapidly between 1949–50 and 1952–53. During this period, the average nutrient content of fertilizers increased from 22.67 per cent in 1949–50 to 25.06 per cent in 1952–53, a rise in value of 2.39 in three years. While between 1943–44 and 1949–50, the average increased from 20.58 to 22.67 per cent, a rise in value of 2.09 in six years.

The primary nutrient content of fertilizers are based on the amounts of fertilizers reported herein and their average analyses as found by the fertilizer control officials of the respective state in which these fertilizers were consumed. Figure 2 shows the total tonnage of primary nutrients consumed in each region in comparison with consumption in 1950–51 and 1951–52. State consumption in relation to consumption in 1951–52 is shown by the index numbers, in per cent, in the last column of Table 1. These numbers are placed alongside of the index numbers of fertilizer consumption. The difference in the two numbers is an indication of the change in composition of the fertilizers.

Total consumption of primary

Table 3. - Consumption of Mixed Fertilizers, by Grades, in Each State and Region
Year Ended June 30, 1953[1]

State	Fifteen Principal Grades Consumed in Regions Tons															All Other Grades		Total
																Number[2]	Tons	Tons
New England																		
	5-8-7	5-10-10	6-12-12	6-3-6	0-10-20	5-8-7	8-16-16	0-14-14	8-12-12	5-10-5	7-7-7	6-6-6	0-15-30	10-10-10	10-15-15			
Maine	70,250	24,760	34,501	--	55	4,076	6,069	11,743	12,537	775	535	9,171	83	748	5,867	41	21,532	301,447
New Hampshire	--	3,893	136	--	--	980	1,692	916	191	310	899	--	1,443	896	--	29	3,017	15,301
Vermont	--	6,876	233	4	14,576	304	4,524	340	102	832	742	--	2,598	1,110	--	31	3,409	35,448
Massachusetts	--	17,575	117	7,664	2,835	7,674	2,908	1,966	431	5,041	5,303	--	641	2,615	--	31	13,182	68,092
Rhode Island	--	6,161	--	--	423	1,103	79	96	548	683	1,076	--	59	113	--	27	3,014	13,354
Connecticut	--	10,256	82	14,446	1,044	5,600	1,865	761	1,006	3,806	3,144	--	3,189	1,431	--	48	13,517	89,824
Total	70,250	69,521	34,969	22,114	20,069	19,697	16,827	16,822	14,815	11,846	11,396	9,171	7,962	6,913	5,867	85	57,981	393,466
Middle Atlantic																		
	5-10-10	3-12-6	6-10-6	10-10-10	0-20-20	4-8-12	0-14-14	6-12-6	4-12-8	2-12-12	8-16-16	7-7-7	4-12-12	3-9-12	6-12-12			
New York	147,399	35,766	150,920	42,199	20,968	13,130	5,565	41,451	811	--	9,310	13,526	167	1,356	9,014	61	36,958	517,580
New Jersey	143,554	4,715	30,090	4,661	2,778	967	5,103	241	9,053	--	598	8,700	74	14,227	1,260	47	23,479	249,499
Pennsylvania	196,249	164,823	49,687	24,754	25,728	9,725	15,570	2,909	6,354	6,994	12,712	1,136	22,723	458	4,724	89	60,617	608,163
Delaware	39,886	6,608	2,561	2,640	939	5,797	3,272	--	2,178	4,587	3,044	123	596	1,733	1,271	51	10,536	85,990
District of Columbia	48	172	814	47	--	196	8	--	7	4	--	--	--	--	1	18	669	1,967
Maryland	63,699	83,431	26,089	6,675	2,484	19,933	11,561	--	6,909	14,461	831	1,810	1,031	6,630	1,413	62	36,466	281,111
West Virginia	16,382	18,489	3,894	1,219	6,232	2	5,196	--	4,629	1,458	116	2	54	--	408	25	14,068	70,096
Total	606,300	301,975	264,045	81,995	59,129	49,750	49,274	44,581	31,941	27,444	26,611	25,297	24,644	22,304	18,091	145	181,787	1,914,044
South Atlantic																		
	4-10-6	3-9-6	4-8-6	3-6-9	2-12-12	4-6-8	5-10-10	5-10-5	4-12-12	6-6-6	3-12-6	4-7-5	0-14-14	3-12-12	6-6-6			
Virginia	478	76,505	--	5,699	173,940	6	68,421	71,830	--	18,942	138,062	--	62,741	60	--	38	121,749	738,433
North Carolina	374,745	377,679	--	144,706	158,994	175	108,049	47,356	--	75,546	486	--	39,271	18	--	24	200,698	1,527,532
South Carolina	204,866	68,901	--	207,908	--	38,253	9,943	58,148	6,278	7,686	8,324	--	1,658	71,060	--	24	27,710	710,694
Georgia	1,354	17,991	426,042	90,666	37,734	174,090	10,792	7,090	164,586	38,389	961	1	1,945	7,489	9	120	143,549	1,123,568
Florida	244	2	54,427	5,376	3,195	86,206	3,178	7,180	1,945	9,217	19	130,602	1,934	2,153	78,791	769	667,984	1,061,994
Total	581,677	541,077	481,069	454,376	373,763	297,712	200,383	191,604	172,709	150,349	147,842	130,603	107,549	80,770	78,800	869	1,161,690	5,162,171
East North Central																		
	3-12-12	4-16-16	10-10-10	0-20-20	5-10-10	3-18-9	3-9-18	8-8-8	3-9-27	2-12-6	5-20-20	0-12-12	0-10-30	0-15-15	4-12-8			
Ohio	665,486	16,199	32,774	34,909	126,446	31,507	9,412	20,977	353	48,333	12,046	15,691	613	3,043	9,597	60	56,439	1,083,824
Indiana	529,238	162,677	71,939	39,523	21,249	12,422	25,327	42,882	25,274	9,556	13,196	8,219	5,136	17,254	3,612	59	37,863	1,025,447
Illinois	241,313	101,230	85,783	27,128	1,390	5,088	25,930	21,023	51,355	1,334	1,134	2,545	3,269	5,431	7,373	56	62,019	644,692
Michigan	299,171	69,586	16,879	27,276	12,162	48,946	16,572	9,526	1,348	14,536	4,136	7,948	2,394	4,029	5,004	32	44,030	583,464
Wisconsin	134,781	42,386	26,106	43,039	125	12,796	22,256	540	11,794	--	22,520	508	21,993	59	1,586	46	36,964	377,589
Total	1,869,988	392,078	233,483	171,972	161,372	110,761	99,509	94,948	90,124	75,811	53,032	34,911	33,405	29,815	27,172	113	238,115	3,714,996
West North Central																		
	3-12-12	6-24-6	10-20-0	4-16-13	4-12-4	8-8-8	4-24-12	6-32-0	10-10-10	4-13-8	0-20-20	12-12-12	5-20-20	15-15-0	6-24-0			
Minnesota	14,956	96	3,185	37,403	--	8	27,288	5,642	9,338	2,297	20,049	30	13,910	294	1,350	67	70,562	206,847
Iowa	89,870	2,984	30,629	34,091	1,947	4,822	811	17,746	23,999	45,621	5,122	4,739	18,250	1,567	27,321	68	67,227	366,546
Missouri	68,129	83,202	5,600	5,982	61,854	64,176	33,324	92	15,250	66	20,667	35,658	38	1,180	--	31	73,653	468,971
North Dakota	452	--	338	948	--	--	5,459	5,948	217	--	152	--	98	28	377	39	5,062	18,364
South Dakota	67	131	4,962	8	6	10	142	702	48	179	8	--	2	330	161	32	1,975	7,921
Nebraska	181	792	12,950	--	248	28	6	7,561	88	122	413	517	46	13,515	289	46	12,703	49,429
Kansas	1,910	17,286	36,129	--	8,220	1,594	1,330	15,204	1,067	18	305	154	10	16,252	21	33	12,291	110,781
Total	145,315	104,490	92,883	78,432	72,275	70,638	68,360	52,795	50,007	48,263	46,716	41,098	32,251	32,164	30,019	143	263,553	1,229,229
East South Central																		
	4-10-7	6-8-8	8-8-4	5-10-5	3-9-6	6-12-12	3-12-12	0-14-14	6-8-6	2s12-6	5-10-10	4s12-6	0-12-12	8-8-8	4-8-8			
Kentucky	--	3,284	13	1,818	36,088	5,128	61,234	4,181	75,945	54,257	29,485	44,497	18,971	9,453	67	53	114,617	458,560
Tennessee	356	7,623	6,464	2,939	90,968	97,090	24,979	1,107	2,563	9,529	19,893	8,451	26,172	10,153	31,563	62	75,911	417,909
Alabama	467,837	65,252	198,067	2,062	5	64	4	69,443	55	8	80	1	37	8,778	119	81	40,996	948,734
Mississippi	3,690	143,561	7,759	141,090	--	--	835	7,013	62	--	8,350	6	37	16,143	--	26	9,985	338,721
Total	471,883	219,589	209,275	150,299	130,042	102,279	87,754	81,746	78,915	63,792	57,778	49,935	44,216	39,807	31,738	119	240,908	2,068,634
West South Central																		
	5-10-5	8-8-8	4-12-4	8-12-12	6-8-12	0-14-7	3-9-18	12-24-12	12-12-12	10-20-10	6-6-6	3-9-27	6-10-4	8-10-10	15-15-15			
Arkansas	61,566	7,760	9,407	2,982	36,816	1,969	28,129	1,647	5,843	6,035	107	15,016	--	1,545	2,014	52	16,629	196,944
Louisiana	36,893	38,899	16,176	30,887	1,001	2,522	357	4,062	7,589	636	13,175	--	2,106	3,888	5,009	31	22,531	180,131
Oklahoma	26,570	881	10,531	1,523	22	324	716	2,998	169	1,887	2	--	1,321	2,155	293	28	11,778	60,440
Texas	116,871	28,455	19,753	7,623	600	30,769	--	15,654	2,445	3,828	98	--	8,588	3,628	4,756	70	40,136	283,199
Total	241,499	72,965	55,867	42,415	38,439	35,584	29,202	24,161	16,246	14,382	13,382	15,016	11,915	11,214	10,072	113	90,673	720,714
Mountain																		
	10-10-0	10-20-0	12-24-0	10-16-8	6-10-4	10-10-5	6-30-0	10-10-10	15-11-0	10-16-5	10-20-10	10-20-5	17-7-0	7-21-7	12-15-0			
Montana	--	2,763	--	11	217	--	419	--	--	154	--	--	--	--	--	16	336	3,919
Idaho	8,551	1,022	--	917	285	1,260	460	--	1,638	451	--	--	--	--	889	23	982	14,456
Wyoming	30	322	475	--	120	20	25	--	--	100	94	--	--	8	--	18	1,823	3,018
Colorado	--	1,194	5,252	2,427	831	63	765	871	--	836	67	--	--	959	--	46	5,905	18,966
New Mexico	37	851	--	--	116	--	--	--	--	--	130	--	--	--	--	17	1,638	2,849
Arizona	5,946	5,957	--	--	--	643	--	1,063	--	--	1,063	1,330	1,065	--	--	43	7,845	24,908
Utah	187	612	--	3	1,572	41	276	--	43	70	--	--	--	1	37	26	472	3,319
Nevada	--	109	--	--	372	58	--	--	--	--	--	--	4	--	--	12	187	710
Total	12,851	12,810	5,727	3,358	3,213	1,985	1,940	1,934	1,681	1,591	1,354	1,330	1,069	968	926	114	18,984	71,811
Pacific																		
	10-10-5	17-7-0	8-8-4	15-5-4	6-10-4	8-10-12	5-10-10	6-6-6	10-10-10	10-16-8	10-20-0	4-10-10	10-12-10	10-10-0	12-12-6			
Washington	1,625	960	--	--	5,026	--	8,212	--	830	172	97	--	--	22	600	99	12,612	30,246
Oregon	214	--	--	146	971	--	1,446	--	219	6,936	732	--	--	341	1,579	76	7,138	19,430
California	31,630	30,288	19,275	14,218	7,726	11,017	--	8,482	8,686	--	4,915	5,808	4,279	3,590	659	304	101,819	249,988
Total	33,469	31,248	19,275	14,364	13,622	11,017	9,658	8,482	7,735	7,110	5,781	5,808	4,279	3,953	2,837	425	121,569	299,287
Territories[3]																		
	12-6-10	12-4-10	16-4-7	14-2-6	13-3-12	6-8-10	14-4-10	10-10-6	6-6-10	12-2-10	9-10-6	12-6-6	16-4-5	12-3-15	10-6-14			
Puerto Rico	37,386	24,612	22,495	17,162	14,689	13,526	10,721	10,698	8,427	6,863	6,427	5,476	4,095	3,837	3,754	36	18,946	209,708
	10-16-6	10-20-20	5-20-10	6-16-6	10-20-10	5-15-5	10-10-5	10-6-4	7-6-19	--	--	--	--	--	--			
Alaska	28	21	20	20	20	10	10	7	2	--	--	--	--	--	--	0	0	138

1/ Dash indicates no data was reported.

2/ The number of mixtures shown for each State and Region is exclusive of mixtures not specified by grade, although their tonnages are included in the totals.

3/ The total consumption in Hawaii was 58,433 tons of mixed goods, comprising 93 grades, which were manufactured to consumer's specifications.

FERTILIZER

FILLS the barrel

Di-Calcium Phosphate 30/32% A.P.A.
Triple Superphosphate 46% A.P.A.
Nitrogenous Tankage 10/11% NH_3
Calcium Nitrate 15.5% N
Muriate of Potash 60% K_2O
"Nitrolime" 20.5% N

'he proper fertilizer — formulated to meet he multitude of complex soil, climatic and rop requirements — is today an essential f successful farming operations, increases he yield in sales and profits for manufacturer nd dealer.

And the proper fertilizer formulation emands basic plant foods of naximum effectiveness.

uch ingredients — in a complete ne of nitrogen, phosphorous and otassium products — are offered by

BRADLEY & BAKER

ith a practical guarantee f consistent quality and economy.

BRADLEY & BAKER

asic plant foods, or many years now the standards or fine fertilizer ingredients, re distributed from centrally located oints throughout the country. heir quality is matched by reputation for service which cludes well-trained epresentatives who will ladly assist you with any lant food problem.

PRODUCTS:

REPRESENTING.

U. S. Phosphoric Products Division, Tennessee Corporation, Tampa, Fla.
Bonneville, Ltd., Wendover, Utah
Centraal Stikstof Verkoopkantoor, N. V. The Hague, Holland
Endicott-Johnson Corporation, Endicott, N. Y.
Texas City Chemicals, Inc., Texas City, Tex.

BRADLEY & BAKER

155 EAST 44th STREET • NEW YORK 17, N. Y.

DISTRICT SALES OFFICES:

BALTIMORE, MD. • HOUSTON, TEX. • JACKSONVILLE, FLA. • INDIANAPOLIS, IND. • ST. LOUIS, MO.

nutrients in the New England region and the territories was approximately the same as in 1951–52 but was four per cent less in the East South Central region. In the West South Central region although the amount of fertilizer consumed was five per cent below that in 1951–52, the use of high analysis fertilizers resulted in a two per cent increase in the quantity of nutrients. Total nutrients consumed in all other regions increased from four to 30 per cent.

High analysis fertilizers have changed the order of highest consuming regions. Although the total consumption of fertilizers is still the highest for the South Atlantic region where consumption amounted to 6,200,202 tons of primary nutrient bearing fertilizers (Table 5) in comparison with 5,099,353 tons in the East North Central region, the nutrient content was but 1,337,048 tons (Table 6) compared with 1,342,877 tons in the East North Central region.

The average nutrient content of fertilizers consumed in the South Atlantic region was 21.56 per cent (Table 7) in comparison with 26.33 per cent for the East North Central region. In terms of primary nutrients, this latter region is now the highest consuming area. ◆

Table 4. – Principal Fertilizer Materials Consumed as Such, Year Ended June 30, 1953[1]

Tons

State & Region	Chemical Nitrogen Materials					Natural Organics		Phosphates				Potash Materials		Total Primary Nutrient Materials	Secondary and Trace Element Materials[2]
									Superphosphates						
	Ammonium Nitrate	Ammonium Sulfate	Calcium Cyanamide	Sodium Nitrate	Other[2]	Dried Manures	Other[2]	Phosphate Rock[3]	18-20 Percent Grades	30-50 Percent Grades	Other[2]	Chlorides 50 & 60 Percent Grades	Other[2]		
Maine	1,172	113	120	279	295	621	123	14	6,960	0	132	47	72	9,948	90
New Hampshire	549	35	21	160	70	160	274	12	4,622	0	93	95	11	6,102	52
Vermont	360	0	2	81	202	80	50	235	12,901	0	34	311	37	14,293	32
Massachusetts	990	70	247	1,255	295	2,162	4,440	181	5,901	0	912	748	0	17,201	80
Rhode Island	160	10	40	149	59	302	673	14	599	0	93	49	2	2,150	7
Connecticut	471	75	46	928	216	1,161	15,401	154	5,008	13	975	1,074	1,212	26,724	1,020
New England	3,702	303	476	2,852	1,137	4,476	20,961	610	35,991	13	2,239	2,324	1,334	76,418	1,281
New York	9,667	1,026	1,598	8,215	3,639	3,681	7,161	743	103,167	236	1,020	781	359	141,273	750
New Jersey	3,543	246	3,131	3,366	2,127	3,609	2,631	585	6,393	5	744	1,165	48	27,592	336
Pennsylvania	4,638	2,434	1,713	2,670	2,911	3,509	4,810	6,605	53,335	0	4,061	678	386	87,730	1,451
Delaware	1,981	2	129	606	953	377	50	0	665	0	43	93	0	4,898	296
District of Columbia	0	4	4	79	6	172	278	0	35	0	39	3	0	620	0
Maryland	2,036	104	1,114	4,049	2,246	1,076	285	2,310	8,097	10	384	140	446	22,297	277
West Virginia	490	279	15	1,973	294	199	95	141	13,331	313	35	15	0	17,160	2
Middle Atlantic	22,355	4,095	7,704	20,966	12,176	12,603	15,310	10,384	185,023	564	6,326	2,875	1,219	301,590	3,112
Virginia	5,455	134	963	31,719	26,107	1,015	716	2,497	10,307	1,548	1,821	1,315	14,092	97,689	17,311
North Carolina	17,936	203	14,452	142,686	104,589	470	1,376	1,141	26,111	1,406	8,809	11,923	11,570	342,672	31,446
South Carolina	20,213	945	1,682	93,256	78,255	312	593	374	32,527	60	11,480	18,275	4,139	262,701	2,536
Georgia	20,213	2,147	1,998	92,601	48,055	739	1,107	1,367	34,685	566	26,278	10,945	4,261	245,462	16,935
Florida	9,017	1,908	838	16,680	17,664	1,047	6,697	12,726	8,838	63	6,229	1,776	16,024	99,507	3,045
South Atlantic	73,434	5,337	19,933	376,942	274,670	3,583	10,489	18,105	112,368	3,633	54,617	44,834	50,086	1,048,031	71,273
Ohio	11,613	8,168	2,103	1,813	18,095	1,357	8,337	11,690	20,172	3,494	646	2,168	594	90,250	127
Indiana	40,722	5,205	9,233	573	49,493	723	1,667	37,596	16,888	3,769	172	13,850	388	180,279	67
Illinois	29,466	31,482	1,648	410	67,717	4,463	6,849	700,835	64,846	7,325	6,394	85,674	765	1,008,074	400
Michigan	10,013	8,102	387	1,079	9,010	2,011	8,808	3,502	18,021	221	1,676	952	9	63,991	541
Wisconsin	10,930	784	110	3	1,014	719	4,206	16,906	2,639	78	111	3,945	318	41,763	114
East North Central	102,744	53,741	13,481	3,878	145,329	9,273	29,867	770,529	122,566	14,887	9,199	106,789	2,074	1,384,357	1,249
Minnesota	6,097	1,615	161	0	4,450	815	5,619	7,713	10,295	20,519	1,271	787	0	59,342	1,520
Iowa	31,458	15,389	274	0	18,902	247	1,629	24,772	58,986	6,883	20,302	4,983	11	183,836	82
Missouri	33,706	7,302	20	256	27,538	837	2,032	263,656	11,086	4,892	5,410	17,227	858	364,820	3
North Dakota	210	15	140	0	23	0	30	60	341	17,182	3,328	2	0	21,331	200
South Dakota	2,230	276	0	0	474	25	80	450	2,265	2,143	857	2	0	8,802	0
Nebraska	28,526	12,061	1	0	29,437	508	770	1,378	7,149	10,066	6,377	81	0	96,374	99
Kansas	23,693	7,943	1	24	14,284	277	330	9,446	10,238	29,638	32,288	716	0	128,878	0
West North Central	125,920	44,601	597	280	95,108	2,709	10,490	297,476	100,360	91,343	69,833	23,798	869	863,383	1,904
Kentucky	31,062	1,597	3,314	4,063	4,035	359	141	14,248	63,731	11,044	8,427	5,331	8,261	155,593	26
Tennessee	51,313	543	1,909	20,992	13,893	636	690	903	27,170	12,341	18,478	11,190	2,029	162,087	215
Alabama	58,588	918	392	99,800	23,320	394	180	5,104	50,831	1,777	158,848	9,859	1,152	411,163	610
Mississippi	128,643	23,357	11,245	54,386	41,014	32	30	7,468	40,431	2,780	71,474	19,902	134	400,896	17
East South Central	269,596	26,415	16,860	179,231	82,262	1,421	1,041	27,723	182,163	27,942	257,227	46,282	11,576	1,129,739	868
Arkansas	34,793	8,391	13,676	30,683	13,421	63	55	1,595	29,526	3,472	3,997	28,276	1,149	169,096	6
Louisiana	25,936	6,649	1,070	27,528	23,892	206	123	4,310	19,190	2,385	19,215	7,549	109	138,161	561
Oklahoma	7,666	3,056	0	338	1,007	579	315	21,069	36,733	3,727	8,817	3,024	74	86,395	100
Texas	26,942	33,490	2,778	2,264	22,552	1,687	3,255	20,080	87,151	22,944	69,616	1,236	36	283,020	4,286
West South Central	94,337	51,586	17,524	60,803	60,872	2,534	3,748	47,044	172,599	32,528	91,645	40,085	1,367	676,672	4,963
Montana	3,620	3,841	0	0	40	0	39	0	130	12,649	1,200	15	0	21,534	570
Idaho	9,629	17,593	278	3	502	80	33	100	12,430	9,943	4,184	62	0	54,937	4,719
Wyoming	1,460	751	0	0	192	10	0	50	1,396	4,252	400	8	0	8,509	320
Colorado	5,557	2,957	0	40	1,723	10	668	206	4,184	11,719	1,819	174	3	29,060	622
New Mexico	2,087	2,291	0	11	4,083	1	180	0	1,762	8,996	5,529	2	0	24,942	300
Arizona	13,106	19,050	483	1,307	30,966	2,322	247	0	4,199	4,306	18,688	6	272	94,951	12,298
Utah	4,601	13,886	0	0	44	110	90	0	3,935	3,534	1,969	72	10	28,251	399
Nevada	98	399	0	172	67	82	16	40	283	616	1,140	1	0	2,914	7,399
Mountain	40,148	60,868	761	1,533	37,617	2,616	1,273	396	28,319	56,014	34,929	340	286	265,098	26,625
Washington	20,474	15,745	94	342	17,297	1,747	3,649	690	12,240	5,047	8,126	2,744	106	88,301	5,828
Oregon	22,088	41,238	792	8	10,328	430	666	580	19,797	2,336	15,387	1,357	90	115,097	13,442
California	71,302	157,342	3,984	498	128,259	4/ 166,724	54,416	2,259	71,293	14,295	80,722	1,032	4,166	755,292	746,860
Pacific	113,864	214,325	4,870	848	155,884	167,901	58,731	3,529	103,330	21,678	104,235	5,133	4,362	958,690	766,130
Continental U. S.	846,100	461,271	82,206	647,323	865,055	207,115	151,910	1,175,795	1,042,719	248,602	630,250	272,460	73,172	6,703,978	877,395
Hawaii	0	38,654	0	167	10,139	12	0	1,167	4,035	0	5,491	9,870	1,282	70,807	92
Puerto Rico	0	34,811	13	0	1,401	0	0	0	73	21	1,204	65	7	37,595	0
Alaska	152	13	0	3	1	0	0	0	0	227	51	70	0	517	0
Territories	152	73,478	13	160	11,541	12	0	1,167	4,108	248	6,746	10,005	1,289	108,919	92
Total: 1952-53	846,252	534,749	82,219	647,483	876,596	207,127	151,910	1,176,962	1,046,827	248,850	636,996	282,465	74,461	6,812,897	877,487
1951-52	799,189	486,817	42,254	681,761	572,903	198,726	145,089	1,160,020	1,224,290	225,059	704,787	246,576	73,548	6,561,019	785,060
1950-51	638,376	461,601	64,222	683,967	456,811	183,450	135,429	1,039,864	1,533,877	239,725	677,701	189,858	61,882	6,366,743	646,289

1/ Includes materials distributed by Government agencies. Excludes lime and materials used by manufacturers in the formulation of commercial mixtures.
2/ The principal commodities are shown in Table 5, by regions.
3/ Includes colloidal phosphate, the quantity of which is shown separately, by regions, in Table 5.
4/ Estimated.

IT'S A NATURAL

Pure Colloidal
Kaolinite Kaolin
P.C.E. 34-35

TAKO

ALABAMA'S FINEST

55%—1 micron
90%—10 microns

High in Al_2O_3
Very Low in Iron

- Hand-selected crude
- Airfloated Bulk or bagged
- Contains no mica

LARGE TONNAGE USED SINCE 1939

Write for Information & Samples:

THE THOMAS ALABAMA KAOLIN CO.

2412 Ken Oak Road Baltimore 9, Maryland

Mines: Chaulk Bluff, Ala.
Processing Plant: Hackleburg, Ala.

"A Neighbor of Southland Industry"

TC TENNESSEE CORPORATION

TRIPLE SUPERPHOSPHATE

46 to 48% Available Phosphoric Acid

A MARK OF FLORIDA TRIPLE PHOSPHATE RELIABILITY

20% SUPERPHOSPHATE

Sales Agents: Bradley & Baker
155 East 44th St. New York, N. Y.

•

U. S. Phosphoric Products

Division

TENNESSEE CORPORATION

Tampa, Florida

NO RAMMING OR JAMMING! NO SPINNING OF WHEELS WHEN LOADING BULKY OR "PACKED" MATERIALS

LESSMANN LoadALL

DIGS IN WHILE STANDING STILL!

Check these Features!

- **STANDARDIZED PARTS.** Ford, Timken, Vickers, Bendix, etc., assure highest quality components and low-cost servicing.
- **SAFETY.** Operator has unrestricted visibility and is protected from loader arms.
- **EASY HANDLING.** Full reverse shifting gives LOAdALL four speeds forward and four reverse. Three simple, conveniently located hydraulic controls assure efficiency.
- **LOW COST.** You save on first cost, operating costs and maintenance costs with a LOAdALL.
- **LOAdALL BUCKETS.** Available with capacities of ⅜, ¾, ⅞, 1, 1¼ and 1½ yards.

A HIGHLY MANEUVERABLE POWER SHOVEL

Lessmann LOAdALL scoops up big loads of the most heavily compacted ingredients or finished fertilizers . . . does it in 5 seconds while standing still! Extra hydraulic cylinders supply Hydraulic Power Crowd. This means *loading* with hydraulics which eliminates ramming and spinning of wheels . . . *minimizes repairs, reduces maintenance!* Dozer blade is easily attached for yard maintenance. Crane-hook, lift forks, snow and trash buckets are also available.

9 FT. DUMPING CLEARANCE

LOAdALL has clearance for the highest trucks, bins and mixing hoppers. It loads or unloads at any height from 12″ below wheel level to 108″ above. Wheelbase of 73″ and 12′ turning radius make it highly maneuverable.

52″ REACH

Here's a full 4′4″ reach at maximum clearance! LOAdALL carries load close but quickly boosts it *'way out ahead* for easier loading . . . another advantage of Hydraulic Power Crowd.

•

HYDRAULIC POWER-CROWD

LESSMANN MANUFACTURING COMPANY

Affiliate of United Steel Barrel Co., Philadelphia—Wilmington, Del.

2006 Easton Blvd., Des Moines 4, Iowa

Write for Complete Information TODAY!

Table 5. - Kinds of Fertilizers Consumed in Regions of the United States, in Tons, During Year Ended June 30, 1953 1/

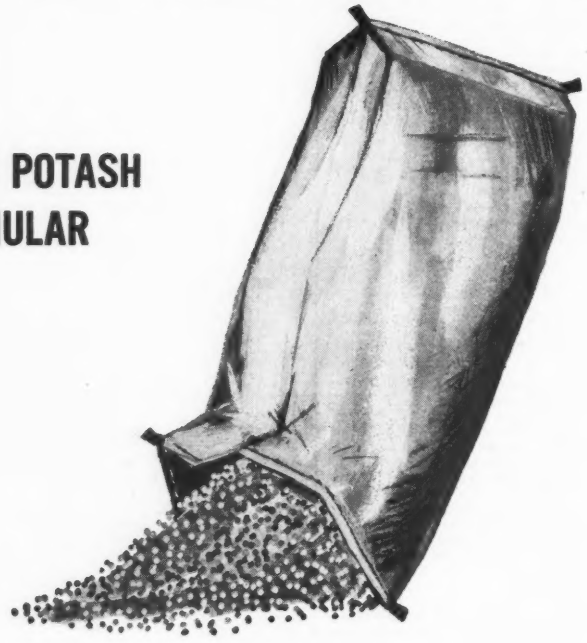
Kinds	New England	Middle Atlantic	South Atlantic	East North Central	West North Central	East South Central	West South Central	Mountain	Pacific	Territories	Total
MIXED GRADES: N-P-K	344,021	1,672,986	4,728,865	3,381,469	913,318	1,870,707	652,036	27,893	239,645	248,878	14,079,818
N-P	92	137	990	777	240,098	384	21,257	43,173	53,403	3,380	363,691
P-K	49,453	140,914	260,875	330,866	75,502	186,960	47,441	200	3,088	2,234	1,097,533
N-K	---	7	161,441	1,884	311	583	---	45	3,131	13,780	181,182
CHEMICAL NITROGEN MATERIALS											
Ammonia, anhydrous	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	217,182
Ammonium nitrate	3,702	22,355	73,434	102,744	125,920	269,596	94,337	40,148	113,864	152	846,252
Ammonium nitrate-limestone mixtures	304	5,041	245,787	76,967	37,629	46,679	7,414	---	24	---	419,845
Ammonium sulfate	303	4,095	5,337	53,741	44,601	26,415	51,586	60,868	214,325	73,478	534,749
Calcium cyanamide	476	7,704	19,933	13,481	597	16,860	17,524	761	4,870	13	82,219
Calcium nitrate	---	---	10,705	---	45	35	---	4,689	32,474	32	47,980
Nitrogen solutions: 16-41% N 3/	---	680	2,335	11,089	9,181	84	3,070	6,165	40,313	---	72,917
Sodium nitrate	2,852	20,956	376,942	3,878	280	179,231	60,803	1,533	848	160	647,483
Other 4/	833	6,455	15,943	57,273	48,253	35,464	50,388	26,763	83,073	11,509	5/ 118,672
NATURAL ORGANICS											
Blood, dried	---	245	37	119	---	---	---	11	1,287	---	1,699
Castor pomace	3,051	20	2,389	---	---	---	---	---	1,520	---	6,980
Compost	276	443	772	645	4,038	---	1,748	---	4	---	7,926
Cottonseed meal 6/	10,992	45	1,386	---	---	---	3	---	36	---	12,462
Fish scrap, meal, and emulsions	534	8	---	---	---	---	---	---	1,286	---	1,828
Hoof and horn meal	72	---	---	---	---	---	---	---	---	---	72
Manures, dried	4,476	12,603	3,583	9,273	2,709	1,421	2,534	2,615	167,901	12	207,127
Sewage sludge, activated	3,804	8,677	4,239	28,838	5,951	1,036	1,997	1,282	14,027	---	69,831
Sewage sludge, other	---	63	---	---	501	---	---	---	37,967	---	38,531
Tankage, animal	---	593	193	---	---	---	---	---	1,041	---	1,827
Tankage, garbage	---	---	1	---	---	---	---	---	1,200	---	1,201
Tankage, process	1,404	5,209	1,158	265	---	5	---	---	3	---	8,044
Other 7/	828	7	314	---	---	---	---	---	360	---	1,509
PHOSPHORUS MATERIALS											
Ammonium phosphate: 11-48	---	5	---	120	3,697	---	---	1,716	5,958	4,144	15,640
" " 16-20	---	---	1	3,061	42,202	63	68,206	26,617	68,990	1,442	210,582
" " 13-39	---	---	16	40	19,059	---	7,635	2,105	9,691	---	38,546
Ammoniated superphosphate	---	---	458	---	---	---	273	---	6,815	1,156	8,701
Basic lime phosphate	---	---	112	---	---	---	---	---	---	---	112
Basic slag	---	2,914	48,858	---	---	234,914	14,851	---	---	---	301,537
Bonemeal, raw	166	716	635	83	9	6	114	---	1,224	---	2,953
Bonemeal, steamed	1,670	2,691	607	1,334	70	528	101	---	1,366	5	8,372
Calcium metaphosphate	---	---	2,222	3,308	4,393	7,124	408	27	196	---	17,678
Fused tricalcium phosphate	---	---	1,708	1,253	403	14,592	---	---	---	---	17,956
Phosphoric acid: 16-53% P_2O_5	---	---	---	---	---	---	57	4,464	9,995	---	14,516
Phosphate rock	610	8,755	15,156	756,894	288,763	14,281	46,672	356	3,339	1,167	1,135,993
Colloidal phosphate	---	1,629	2,949	13,635	8,712	13,442	372	40	190	---	40,969
Precipitated bone	403	---	---	---	---	---	---	---	---	---	403
Superphosphate: 18%	1,763	23,783	54,459	38,344	16,899	40,155	55	2,807	60,952	---	239,217
" 19%	1,021	1	1,782	5	3,361	1,665	178	23,455	42,371	---	73,839
" 20%	33,207	161,239	56,127	84,217	80,100	140,343	172,366	2,057	7	4,108	733,771
" 30-38%	---	10	---	101	2,782	---	6,310	938	4	---	10,145
" 42%	---	---	---	---	34,044	---	---	37,368	10,326	---	81,738
" 43-44%	---	---	---	20	88	---	---	---	1,377	---	1,485
" 45%	4	306	5	3,938	29,132	10,143	21,363	9,794	1,947	21	76,653
" 46%	---	---	---	2,151	13,124	2,132	1,976	4,771	4,174	227	28,555
" 47%	9	248	1,334	8,107	6,950	8,254	1,559	2,375	3,850	---	32,686
" 48%	---	---	888	300	2,703	7,245	1,290	768	---	---	13,194
" 49-50%	---	---	1,406	270	2,520	168	30	---	---	---	4,394
POTASSIUM MATERIALS											
Cotton hull ashes	595	---	5	---	---	---	---	---	---	---	600
Lime-potash mixtures: 5-10% 8/	---	355	22,939	---	---	1,046	---	---	---	---	24,340
Manure salts: 21-40%	---	8	2,960	411	385	30	610	---	---	---	4,404
Potassium carbonate	---	---	153	---	---	---	---	---	---	---	153
Potassium chloride: 50%	75	522	34,422	33,982	608	19,489	20,719	75	363	---	110,255
" " 60%	2,249	2,353	10,412	72,907	23,190	26,793	19,366	265	4,770	10,005	172,210
" magnesium sulfate	167	146	1,941	1,202	484	891	609	---	14	323	5,777
" nitrate	161	26	8,304	---	---	48	---	---	---	---	8,539
" phosphate ash 9/	---	---	8	---	---	---	---	---	---	---	8
" sodium nitrate	74	---	1,685	---	---	14	---	187	---	---	1,960
" sulfate	337	675	5,570	452	---	9,547	148	98	4,348	966	22,141
Tobacco stems	---	9	1,103	9	---	---	---	---	---	---	1,121
Wood ashes	---	---	5,418	---	---	---	---	---	---	---	5,418
TOTAL PRIMARY NUTRIENT FERTILIZERS	469,984	2,115,634	6,200,202	5,099,353	2,092,612	3,188,373	1,397,406	336,409	1,267,957	377,191	22,535,121
SECONDARY & TRACE ELEMENT MATERIALS 6/											
Aluminum sulfate	4	11	1	---	---	2	---	---	---	---	18
Borax	60	210	227	176	5	285	7	4	223	---	1,197
Calcium sulfate (gypsum)	1,097	2,530	68,618	771	1,890	375	660	23,801	737,680	---	837,422
Copper sulfate	32	148	---	120	---	1	---	1	27	---	329
Ferrous sulfate	---	---	---	61	---	---	---	12	---	---	73
Magnesium carbonate	---	---	---	---	---	---	---	---	3,385	---	3,385
Magnesium sulfate	49	50	1	26	---	---	---	---	---	13	139
Manganese sulfate	11	67	127	60	2	---	---	1	34	---	302
Sulfur: 25-99+%	3	75	173	1	3	---	4,259	2,762	18,423	---	25,699
Sulfuric acid: 40-93%	---	---	---	---	---	---	---	---	3,340	---	3,340
Zinc sulfate	---	2	29	9	---	24	---	4	66	79	213
Minerals not classified	25	19	2,097	25	4	181	27	40	2,952	---	5,370
Total Sec. & Trace Elem. Mat.	1,281	3,112	71,273	1,249	1,904	868	4,953	26,625	766,130	92	877,487
TOTAL ALL FERTILIZERS	471,265	2,118,746	6,271,475	5,100,602	2,094,516	3,189,241	1,402,359	363,034	2,024,087	377,283	23,412,608

1/ Includes distribution by Government agencies. Does not include the quantities of materials used for manufacture of commercial mixtures.
2/ Included with "Other Chemical Nitrogen Materials." Regional data cannot be published without disclosing operations of individual suppliers.
3/ Includes aqua ammonia. 4/ Anhydrous ammonia, ammonium sulfate-nitrate, urea, and chemical nitrogen materials not classified.
5/ Does not include above total for anhydrous ammonia. 6/ Excludes materials distributed by other than manufacturers of fertilizers.
7/ Seed and nut meals: Linseed (663), Peanut (50), Soybean (166), Tung (264), Other (360), and organics not classified 7 tons.
8/ Includes cement flue dust. Additional quantities are given free to farmers for which no records are kept.
9/ May have been classified in reports as a mixture-supply less than 2,200 tons.

GOING GRANULAR?

5 REASONS WHY
USP HIGRADE MURIATE OF POTASH IS TAILOR-MADE FOR GRANULAR FERTILIZER PRODUCTION:

1. Highest analysis, 62/63% K_2O
2. Ready solubility
3. Fine uniform grain size
4. Consistently free-flowing
5. Clear white color



SUNSHINE STATE POTASH
A PRODUCT OF NEW MEXICO U.S.A.
Reg. U. S. Pat. Off.

UNITED STATES POTASH COMPANY INCORPORATED

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Southern Sales Office Rhodes-Haverty Building, Atlanta, Georgia

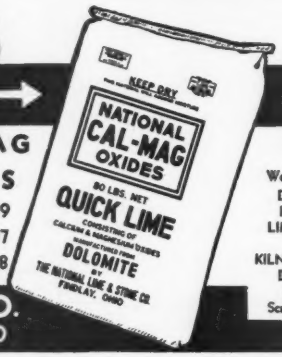
Table 6. - Consumption of Primary Plant Nutrients in Fertilizers, Year Ended June 30, 1953 1/

Tons

State & Region	In Mixtures					In All Fertilizers				
	Nitrogen	P_2O_5		K_2O	Total N, Avail. P_2O_5, & K_2O	Nitrogen	P_2O_5		K_2O	Total N, Avail. P_2O_5, & K_2O
		Available	Total				Available 2/	Total 3/		
Maine	12,736	21,776	22,757	25,959	60,471	13,369	23,222	24,235	26,040	62,631
New Hampshire	593	1,932	2,037	2,265	4,790	853	2,927	3,075	2,331	6,111
Vermont	1,101	4,185	4,355	6,046	11,332	1,299	6,885	7,346	6,246	14,430
Massachusetts	3,741	6,539	6,933	6,640	16,920	4,837	8,131	8,533	7,167	20,135
Rhode Island	705	1,314	1,393	1,367	3,386	869	1,474	1,563	1,407	3,750
Connecticut	3,299	5,201	5,536	5,879	14,379	4,775	6,977	7,432	7,225	18,977
New England	22,175	40,947	42,911	48,156	111,278	26,002	49,616	52,184	50,416	126,034
New York	27,817	58,875	61,493	45,914	132,506	34,637	80,444	84,132	46,563	161,644
New Jersey	12,598	26,409	27,742	24,850	63,857	16,344	27,984	29,515	25,645	69,973
Pennsylvania	26,155	73,656	76,555	59,870	159,681	30,479	85,614	90,761	60,545	176,638
Delaware	3,853	9,362	9,786	9,276	22,491	5,030	9,512	9,920	9,343	23,885
District of Columbia	111	203	207	123	437	148	229	234	131	508
Maryland	11,308	32,095	34,140	25,890	69,293	13,710	33,942	36,679	26,042	73,694
West Virginia	2,228	9,119	9,822	6,715	18,062	2,861	12,055	12,933	6,730	21,646
Middle Atlantic	84,070	209,719	219,725	172,538	466,327	103,209	249,780	264,174	174,999	527,988
Virginia	23,104	84,018	89,511	71,517	178,639	36,707	87,887	94,169	73,319	197,913
North Carolina	58,145	148,056	159,457	125,557	331,758	113,087	155,038	166,955	133,581	401,706
South Carolina	26,632	70,431	75,631	57,215	154,278	65,253	77,963	83,699	68,594	211,910
Georgia	45,399	102,757	119,245	92,591	240,747	81,484	112,953	130,321	99,401	293,838
Florida	55,399	73,521	89,078	83,077	211,997	66,609	76,596	95,809	88,576	231,781
South Atlantic	208,679	478,783	532,922	429,957	1,117,419	363,140	510,437	570,963	463,471	1,337,048
Ohio	38,263	134,744	144,446	129,457	302,464	50,605	141,167	154,498	130,924	322,696
Indiana	38,705	132,700	141,655	140,953	312,358	68,532	139,099	158,897	148,921	356,552
Illinois	29,199	81,422	87,039	93,619	204,240	74,869	120,916	329,452	144,465	340,250
Michigan	19,181	78,859	83,945	75,670	173,710	27,627	83,863	90,182	76,297	187,787
Wisconsin	12,273	53,172	56,608	61,707	127,152	17,070	54,460	62,785	64,062	135,592
East North Central	137,621	480,897	513,693	501,406	1,119,924	238,703	539,506	795,854	564,669	1,342,877
Minnesota	8,951	40,227	42,138	29,240	78,418	13,563	52,891	57,641	29,774	96,228
Iowa	20,466	62,265	65,075	32,535	115,256	44,612	84,151	94,709	35,603	164,266
Missouri	28,693	72,488	77,827	48,456	149,637	56,268	86,095	164,889	59,146	201,509
North Dakota	1,074	4,867	5,112	1,436	7,377	1,614	14,088	14,696	1,437	17,139
South Dakota	745	1,709	1,832	140	2,594	1,985	3,362	3,658	142	5,489
Nebraska	5,425	10,186	10,293	1,016	16,627	31,850	17,803	18,494	1,072	50,725
Kansas	10,023	22,984	24,334	5,376	38,383	30,437	47,391	51,874	5,816	83,644
West North Central	75,377	214,716	226,611	118,199	408,292	180,329	305,781	405,961	132,890	619,000
Kentucky	18,046	50,359	55,251	44,856	113,261	31,423	72,418	82,049	51,881	155,722
Tennessee	16,960	45,556	50,257	39,630	103,146	43,140	61,986	66,488	47,142	152,268
Alabama	35,733	84,523	91,268	63,515	183,771	77,374	111,415	122,126	69,404	258,193
Mississippi	19,163	31,965	34,458	24,077	75,195	103,741	48,822	54,412	34,781	187,344
East South Central	89,892	213,403	231,234	172,078	475,373	255,678	294,641	325,075	203,208	753,527
Arkansas	10,444	20,889	22,354	23,461	54,794	42,083	29,696	31,721	39,332	111,011
Louisiana	10,754	20,524	21,866	15,808	47,086	41,195	28,135	31,139	19,982	89,312
Oklahoma	3,512	8,000	8,452	3,493	15,005	8,761	20,433	27,317	5,315	34,509
Texas	16,287	34,724	36,628	18,814	69,825	59,006	75,962	84,738	19,637	154,605
West South Central	40,997	84,137	89,300	61,576	186,710	151,045	154,126	174,915	84,266	389,437
Montana	376	801	893	40	1,217	2,599	6,689	7,201	49	9,337
Idaho	1,564	1,869	1,997	258	3,691	9,460	9,863	12,983	297	19,620
Wyoming	348	673	708	49	1,070	1,159	2,969	3,082	54	4,182
Colorado	1,858	3,893	3,991	796	6,547	5,762	10,973	11,273	900	17,635
New Mexico	237	341	362	60	638	4,408	6,188	6,311	62	10,658
Arizona	2,666	3,497	3,671	582	6,745	29,527	11,608	11,869	704	41,839
Utah	262	498	524	107	867	5,022	3,341	3,440	168	8,521
Nevada	54	86	91	34	174	409	632	667	37	1,078
Mountain	7,365	11,658	12,237	1,926	20,949	58,346	52,263	56,826	2,261	112,870
Washington	2,211	3,858	4,016	2,954	9,023	25,363	10,827	11,428	4,726	40,916
Oregon	1,708	2,589	2,802	1,576	5,873	24,427	11,305	12,047	2,428	38,160
California	26,976	25,172	26,639	14,027	66,175	157,592	72,548	76,170	20,687	250,827
Pacific	30,895	31,619	33,356	18,557	81,071	207,382	94,680	99,645	27,841	329,903
Continental U. S.	697,071	1,765,879	1,901,989	1,524,393	3,987,343	1,583,834	2,250,829	2,745,587	1,704,021	5,538,684
Hawaii	6,164	4,987	5,467	9,433	20,584	19,926	8,162	9,045	15,929	44,017
Puerto Rico	24,848	11,397	12,993	20,161	56,406	33,222	11,616	13,212	20,204	65,042
Alaska	12	23	23	14	49	74	143	146	56	273
Territories	31,024	16,407	18,483	29,608	77,039	53,222	19,921	22,403	36,189	109,332
Total: 1952-53	728,095	1,782,286	1,920,472	1,554,001	4,064,382	1,637,056	2,270,750	2,767,990	1,740,210	5,648,016
1951-52	648,223	1,680,705	1,806,523	1,420,395	3,749,323	4/ 1,422,160	2,199,376	2,678,070	1,581,467	4/ 5,203,003
1950-51	583,959	1,541,863	1,657,425	1,254,927	3,380,749	1,236,977	2,109,900	2,536,988	1,379,813	4,726,690

1/ Includes Government distribution.
2/ Includes, as available P_2O_5, 2 percent of the colloidal phosphate and 3 percent of the phosphate rock marketed for direct application.
3/ Includes, as total P_2O_5, 22 percent of the colloidal phosphate and 32 percent of the phosphate rock marketed for direct application.
4/ Revised.

CAL-MAG OXIDES
CUT YOUR COSTS WITH



Unexcelled for its superior Dehydrating, Neutralizing, and Curing factors in the preparation of better fertilizers. Write for complete information.

PROMPT SHIPMENTS

Three railroads serve our Carey, Ohio plant--assuring prompt delivery--everywhere.

CAL-MAG OXIDES

MgO 40.39
CaO 58.07
TNP 203.88

We Also Produce
DOLOMITIC HYDRATED LIME (165 TNP)
and
KILN DRIED RAW DOLOMITE (107 TNP)
Screened to size

The NATIONAL LIME and STONE CO.
General Offices • • • • • FINDLAY, OHIO

STEDMAN

FERTILIZER PLANT EQUIPMENT

All Steel Self-Contained Fertilizer Mixing and Bagging Units

Batch Mixers — Dry Batching
Pan Mixers — Wet Mixing
Tailings Pulverizers - Swing Hammer and Cage Type
Acid Weigh Scales
Vibrating Screens
Belt Conveyors — Stationary and Shuttle Types
Dust Weigh Hoppers
Batching Hoppers
Bucket Elevators
Hoppers and Chutes

STEDMAN FOUNDRY & MACHINE COMPANY, INC.
Subsidiary of United Engineering and Foundry Company
General Office & Works: AURORA, INDIANA . . . Founded 1834

Farmers depend on ARMOUR FERTILIZERS

For more than 50 years Armour fertilizers have been "making every acre do its best". Farmers know that Armour's highest-quality fertilizers are made right and cured right to give best results with all crops.

Every bag of fertilizer sold by Armour is backed by years of painstaking scientific research in the fields of chemistry and farming. Testimonials from every section of the country—on all types of crops—prove that Armour fertilizers make increased yields of better quality crops that bring higher profits.

ARMOUR FERTILIZER WORKS
General Office
P.O. Box 1685
Atlanta 1, Georgia

31 FACTORIES CONVENIENTLY LOCATED TO SERVE YOU

Albany, Ga.
Atlanta, Ga.
Augusta, Ga.
Baltimore, Md.
Bartow, Fla.
Birmingham, Ala.
Carteret, N.J.
Chicago Heights, Ill.
Cincinnati, Ohio
Columbia, S.C.
Columbus, Ga.
Dallas, Texas
E. St. Louis, Mo.
Greensboro, N.C.
Houston, Texas
Jacksonville, Fla.
Jeffersonville, Ind.
Memphis, Tenn.
Montgomery, Ala.
N. Kansas City, Mo.
Nashville, Tenn.
New Orleans, La.
Norfolk, Va.
Presque Isle, Me.
Sandusky, Ohio
Siglo, Tenn.
Waterloo, Iowa
Wilmington, N.C.
Winona, Minn.

Also sales offices in Havana, Cuba, and San Juan, Puerto Rico

Table 7. - Weighted Average Content of Primary Plant Nutrients in Fertilizers, in Percent, Year Ended June 30, 1953[1]

State & Region	Mixtures[2]				Materials					Total Nutrients in Mixtures and Materials
					Single Nutrient[3]			Multiple Nutrients[2]	Total Nutrients	
	N	Available P_2O_5	K_2O	Total Nutrients	N	Available P_2O_5[4]	K_2O			
Maine	6.32	10.81	12.89	30.02	30.47	20.01	50.64	11.22	21.71	29.63
New Hampshire	3.88	12.63	14.80	31.31	27.84	20.74	57.55	11.60	21.65	28.55
Vermont	3.10	11.81	17.06	31.97	29.51	20.47	56.90	11.61	21.67	29.01
Massachusetts	5.49	9.60	9.75	24.84	22.14	20.19	59.68	10.99	18.69	23.61
Rhode Island	5.28	9.84	10.24	25.36	19.40	19.25	58.70	10.60	16.93	24.19
Connecticut	5.50	8.68	9.81	23.99	20.54	21.53	51.44	11.21	17.21	21.90
New England	5.63	10.40	12.24	28.27	24.26	20.51	54.05	11.14	19.31	26.82
New York	5.38	11.38	8.86	25.61	24.01	20.30	55.68	10.02	20.62	24.54
New Jersey	5.05	10.58	9.96	25.59	26.22	18.23	56.96	10.22	22.16	25.25
Pennsylvania	4.30	12.11	9.84	26.25	25.53	18.37	53.44	10.56	19.33	25.38
Delaware	4.50	10.92	10.82	26.24	31.42	20.01	58.78	9.22	28.46	26.37
District of Columbia	5.64	10.32	6.26	22.21	15.69	20.75	55.93	9.64	11.46	19.64
Maryland	4.02	11.42	9.21	24.65	24.41	16.54	22.88	11.27	19.74	24.29
West Virginia	3.18	13.01	9.58	25.77	20.31	21.20	57.58	8.96	20.86	24.80
Middle Atlantic	4.63	11.56	9.51	25.70	25.01	19.48	50.85	10.28	20.44	24.96
Virginia	3.13	11.38	9.68	24.19	21.02	23.69	11.51	9.33	19.73	23.67
North Carolina	3.81	9.69	8.22	21.72	19.58	18.47	34.06	11.73	20.41	21.48
South Carolina	3.75	9.91	8.05	21.71	19.81	16.86	50.11	16.65	21.90	21.76
Georgia	4.04	9.14	8.24	21.42	21.59	16.14	47.41	22.22	21.63	21.46
Florida	5.27	6.99	7.90	20.16	20.80	9.93	47.62	25.85	19.88	20.13
South Atlantic	4.05	9.29	8.34	21.68	20.28	16.52	37.15	23.08	20.96	21.56
Ohio	3.53	12.43	11.94	27.90	28.10	16.99	50.49	9.80	22.42	27.48
Indiana	3.77	12.94	13.75	30.46	28.23	10.86	55.78	8.21	24.51	29.57
Illinois	4.53	12.63	14.52	31.68	34.16	4.96	58.55	14.60	13.49	20.59
Michigan	3.29	13.52	12.97	29.78	27.57	19.73	58.19	9.47	22.00	29.00
Wisconsin	3.25	14.08	16.34	33.67	35.31	5.74	54.45	9.14	20.21	32.33
East North Central	3.70	12.94	13.50	30.14	30.87	6.19	57.82	11.20	16.10	26.33
Minnesota	4.33	19.45	14.14	37.92	35.34	31.48	60.15	7.98	30.01	36.15
Iowa	5.58	16.98	8.88	31.44	32.40	18.00	59.12	39.90	26.66	29.85
Missouri	6.12	15.46	10.33	31.91	38.84	4.65	58.94	25.75	14.22	24.17
North Dakota	5.66	25.66	7.57	38.89	31.23	45.17	55.50	50.71	45.76	42.53
South Dakota	9.52	21.85	1.79	33.16	36.89	30.02	50.50	34.34	32.98	33.02
Nebraska	10.98	20.61	2.06	33.65	36.26	32.00	60.50	35.31	35.38	34.79
Kansas	9.05	20.75	4.85	34.65	33.75	31.04	60.36	42.74	35.12	34.90
West North Central	6.13	17.47	9.62	33.22	35.49	14.70	59.06	36.96	24.40	29.58
Kentucky	3.94	10.98	9.78	24.70	30.33	22.63	51.60	8.12	27.29	25.35
Tennessee	4.06	11.15	9.49	24.70	29.46	26.15	56.72	9.08	30.31	26.27
Alabama	4.22	9.98	7.50	21.70	22.73	12.39	53.45	18.20	18.10	20.52
Mississippi	5.70	9.52	7.17	22.39	32.70	13.79	53.41	21.94	27.97	25.43
East South Central	4.37	10.37	8.36	23.10	28.84	16.39	53.75	12.55	24.62	23.63
Arkansas	5.30	10.60	11.91	27.81	30.76	22.62	53.93	37.21	33.24	30.32
Louisiana	5.97	11.39	8.78	26.14	34.90	16.28	54.43	36.05	30.56	28.06
Oklahoma	5.81	13.24	5.78	24.83	32.64	16.08	58.18	40.28	22.58	23.50
Texas	5.75	12.26	6.64	24.65	38.07	21.43	59.09	35.65	29.96	27.30
West South Central	5.69	11.67	8.64	25.90	34.31	19.57	53.84	36.28	29.96	27.87
Montana	9.59	20.44	1.02	31.05	27.28	43.22	60.60	43.76	37.71	36.72
Idaho	10.83	12.95	1.79	25.57	25.78	31.08	60.56	38.69	29.00	28.28
Wyoming	11.54	22.32	1.62	35.48	31.23	39.16	60.50	31.71	36.57	36.29
Colorado	9.85	20.63	4.22	34.70	36.64	39.76	57.16	26.76	38.16	36.79
New Mexico	9.30	13.38	2.35	25.03	38.90	41.83	60.50	38.93	40.17	38.77
Arizona	10.88	14.27	2.38	27.53	37.52	37.53	50.92	34.51	36.96	35.02
Utah	7.91	15.03	3.23	26.17	23.96	32.30	59.31	34.74	27.09	27.00
Nevada	7.60	12.11	4.79	24.50	23.03	33.07	60.50	34.15	31.02	29.75
Mountain	10.33	16.36	2.70	29.38	32.76	37.29	56.62	35.75	34.67	33.55
Washington	7.31	12.76	9.77	29.84	40.46	27.28	59.76	25.47	36.12	34.51
Oregon	8.79	13.32	8.11	30.22	27.34	22.17	57.90	36.85	28.05	28.37
California	10.81	10.08	5.82	26.51	31.94	25.56	53.62	14.18	24.45	24.96
Pacific	10.32	10.56	6.20	27.08	32.18	25.24	56.01	15.80	25.96	26.22
Continental U. S.	4.51	11.43	9.86	25.80	28.64	14.47	51.67	21.68	23.14	25.00
Hawaii	10.55	8.53	16.14	35.22	26.71	16.79	58.25	54.33	33.09	34.06
Puerto Rico	11.85	5.43	9.61	26.89	22.97	26.08	59.52	20.66	22.97	26.30
Alaska	8.56	16.62	9.96	35.14	32.27	48.74	60.56	36.25	43.33	41.81
Territories	11.56	6.12	11.04	28.72	25.13	18.23	58.27	48.19	29.65	28.98
U. S. Average:										
1952-53	4.63	11.34	9.88	25.85	28.54	14.48	51.89	21.96	23.24	25.06
1951-52	4.30	11.14	9.42	24.86	5/ 27.96	14.71	49.98	20.97	5/ 22.16	5/ 24.04
1950-51	4.18	11.03	8.98	24.19	--	--	--	--	21.14	23.23

1/ Excludes materials not guaranteed to contain N, P_2O_5, or K_2O.
2/ Guaranteed to contain two or more of the primary plant nutrients, N, P_2O_5, or K_2O.
3/ Guaranteed to contain only one of the primary plant nutrients.
4/ Includes the available P_2O_5 content of colloidal phosphate and phosphate rock as 2 percent and 3 percent, respectively.
5/ Revised.

Phillips supplies NITROGEN in 4 forms

1 AMMONIUM SULFATE

New Premium Quality Phillips *66* Ammonium Sulfate is available *now!* It's *dry*-cured to remove excess moisture—prevent caking. Uniform, dust-free crystals flow freely—mix easily. Contains 21% nitrogen, ideal for all analyses of mixed goods and for direct application to all farm crops. Contact us now for your requirements.

2 ANHYDROUS AMMONIA

Tank car shipments of Anhydrous Ammonia (82% nitrogen) are assured to Phillips contract customers by Phillips huge production facilities in the Texas Panhandle and at Adams Terminal near Houston. Write our nearest Division Office for full information.

3 NITROGEN SOLUTIONS

Get more N per dollar! Phillips *66* Nitrogen Solutions are well suited to the preparation of high-analysis fertilizers and the ammoniation of superphosphate. These three nitrogen solutions keep handling costs low! Promote rapid, thorough curing!

4 AMMONIUM NITRATE

Phillips *66* Prilled Ammonium Nitrate contains 33% nitrogen. The small, coated prills or pellets resist caking . . . handle easily. Depend on Phillips *66* Prilled Ammonium Nitrate for uniform, free-flowing properties and top-notch crop response.

PHILLIPS CHEMICAL COMPANY

A Subsidiary of Phillips Petroleum Company, Bartlesville, Oklahoma.

Offices in:

AMARILLO, TEX.—*First Nat'l Bank Bldg.*
BARTLESVILLE, OKLA.—*Adams Bldg.*
CHICAGO, ILL.—*7 South Dearborn St.*
DENVER, COLO.—*1375 Kearney Ave.*
DES MOINES, IOWA—*606 Hubbell Bldg.*
HOUSTON, TEX.—*1020 E. Holcombe Blvd.*
INDIANAPOLIS, IND.—*1112 N. Pennsylvania St.*
KANSAS CITY, MO.—*500 West 39th St.*
MINNEAPOLIS, MINN.—*212 Sixth St. South*
NEW YORK, N. Y.—*80 Broadway*
OMAHA, NEB.—*WOW Building*
PASADENA, CALIF.—*604 Citizens Bank Bldg.*
SALT LAKE CITY, UTAH—*68 South Main*
SPOKANE, WASH.—*E. 521 Sprague Ave.*
ST. LOUIS, MO.—*4251 Lindell Blvd.*
TAMPA, FLA.—*1506 South Dale Mabry*
TULSA, OKLA.—*1708 Utica Square*
WICHITA, KAN.—*501 KFH Building*

Scarseth Featured at 2nd Annual California Fertilizer Conference

More than 250 industry representatives, farmers, USDA and University officials attended the Second Annual Fertilizer conference, held at Visalia on April 29 and 30.

Jointly sponsored by the California Fertilizer Association's Soil Improvement committee and the U. of Cal.'s Agricultural Extension Service, the meeting featured talks, experiment reports, a panel discussion and a banquet.

Dr. George D. Scarseth, director of research, American Farm Research Association, was speaker at the dinner on April 29. He referred to his subject, "Hitch Your Fertilizer Wagon to a Star," as hinting that big things are ahead for the fertilizer industry.

"There better be," he continued, "because in the next 20 years food will be needed for some extra 50 million people in the U. S. A tenth of these people will probably want to live in the climate of California."

Phosphate Theme

"Phosphate" was the theme of the April 30 session, sponsored by CFA's Soil Improvement committee.

"Looking now at our phosphate picture, we see some changes— actually, they've been underway for some time," remarked Ralph S. Waltz, manager of agricultural chemicals sales, Wilson & Geo. Meyer & Co., in his talk titled "The Broker Looks at the Phosphate Picture."

"Most of the changes are resulting from increased supplies of all forms of phosphate fertilizers," stated the sales manager. "At last the grower is getting a chance to choose the form he thinks is best for his crops and soil. This chance to select is the signal for suppliers to turn out fertilizers with more sex appeal than a label and a tag.

"Today's grower is looking for and getting more of his fertilizer granulated—he's asking for and getting more plant food units in a ton—and thirdly, he's beginning to ask for his phosphate combined with nitrogen and potash in homogeneous pellets, each pellet having the correct analysis.

"In addition to granulation, sales figures show a steady increase in concentration of plant nutrients in both mixed fertilizers containing phosphate and the phosphate materials themselves.

". . . in general, we can expect phosphate usage to show a spectacular growth in the next few years provided, of course, our industry rises to the challenge and supplies the grower with the materials and help he needs," Waltz declared.

Labeling Phosphorus

"Labeling Phosphorus Fertilizing Materials" was discussed by Allen B. Lemmon, chief, Bureau of Chemistry, California Department of Agriculture.

In selecting phosphorus carriers, said Lemmon, the user of fertilizing materials faces more complications than he does in selecting sources of other plant foods. When selecting potash, he need only decide whether he wants potassium chloride or potassium sulfate. In selecting nitrogen, he must only decide on whether he wants it in the nitric, ammonic or organic form. But when he wants phosphorus, he is faced with a choice of total, insoluble, available and water-soluble forms.

"The experts may tell him that the agronomic or economic values of the different forms depend upon his crop and particularly upon his soil. He is informed that chemical determination of so-called available phosphoric acid does not necessarily indicate the availability of the plant food to plants in his soil, and that he should determine the value of each for himself, which leaves the potential user of phosphorus fertilizing materials pretty much where he was before the science of agricultural chemistry came to his assistance.

"Correction of this state of affairs will be difficult until agricultural science develops more helpful criteria to assess the agronomic values of different types of phosphorus compounds and products under various conditions."

Confusing Terms

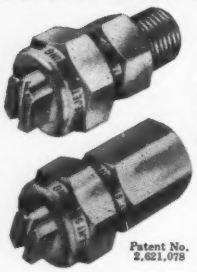
Lemmon told of the confusing terminology used to describe the phosphorus content of fertilizing materials. He said that the Association of American Fertilizer Control Officials has appointed a joint committee with agronomists to find a method by which a change could be made in expressing the composition of fertilizing materials from phosphoric acid to phosphorus and from potash to potassium, without disrupting the fertilizer industry.

He pointed out that most recent developments in fertilizing materials center around phosphorus, nitrogen-phosphorus carriers, materials derived from treatment of rock phosphate with nitric or mixed acids, Rhenania phosphate and other substances.

A panel discussion, moderated by Dr. D. G. Aldrich, Jr., Citrus Experiment Station, on problems of phosphorus fertilization of California crops completed the program. ◆

FOR EVERY CROP
CORN
WHEAT
TOBACCO
FRUIT
VEGETABLES
COTTON
GRASSES
FOR EVERY NEED
WEED CONTROL
PRE-EMERGENCE SPRAYING
FUNGICIDE SPRAYING
LIQUID FERTILIZER SPRAYING
SOIL FUMIGATION
LIVESTOCK SPRAYING
INSECTICIDE SPRAYING

THERE'S A TeeJet® TO DO THE JOB
SPRAY NOZZLE



Over 400 interchangeable orifice tips to fit any TeeJet Spray Nozzle . . . give you a choice to meet the need of any crop and any type of spraying. Tip types include flat spray, hollow cone, full cone, and straight stream. Try TeeJet Spray Nozzles . . . proved best in the field . . . guaranteed for exact performance.

Patent No. 2,621,078

Patent No. 2,619,380

RELATED EQUIPMENT . . . . wide range of related equipment such as BoomJet for single nozzle broadcast spraying in patterns up to 66 feet wide . . . GunJet spray guns for spraying trees, cattle, and scrub growth . . . and strainers, connectors and fittings.

For Complete Information . . . write for Bulletin 58

SPRAYING SYSTEMS CO.
3280 Randolph Street • Bellwood, Illinois • USA

PIONEER
PYROPHYLLITE PRODUCERS

—NOW OFFERS—

"PHYLLITE"
(TRADE NAME)

World's greatest diluent and carrier is non-abrasive, uniform and adheres readily to foliage. It is ground in a Raymond mill—95% through 325 mesh and has a low pH of 5.1. Phyllite is packed in 50 lb. valve bags, 20-ton lots, lowest prices on the west coast, f.o.b. plant.

"STONE MEAL"
(TRADE NAME)

16% organic potash with trace minerals. Immediately available in bulk or sacks. Write us for helpful information and generous sample. New Campo, Calif. plant has increased production to 300 tons per day.

"REDLITE AGGREGATE"
(TRADE NAME)

for aerating soil and amendment, contains 15% iron and 19 other natural trace elements.

MAIN OFFICE
111 NORTH LA CIENEGA BLVD.
BEVERLY HILLS, CALIF.
CRESTVIEW 6-5544 CRESTVIEW 6-4463
or
CHULA VISTA, CALIF.
PO BOX 686 HANCOCK 2-2992

Ashcraft-Wilkinson Co.

Fertilizer Materials A-W *Feeding Materials*

ALL FERTILIZER MATERIALS
FOREIGN AND DOMESTIC

Agricultural Chemicals Sulphate of Ammonia
Organic Ammoniates Sulphur

Exclusive Distributors: DUVAL SULPHUR AND POTASH COMPANY

Vegetable Oil Meals and Feedstuffs

HOME OFFICE: ATLANTA, GA.

BRANCHES:
NORFOLK, VA.
CHARLESTON, S. C.
JACKSON, MISS.
TAMPA, FLA.
COLUMBUS, OHIO

CABLE ADDRESS:
ASHCRAFT

SUBSIDIARIES:
INTERSTATE MILLS, INC.
CAIRO, ILL.
INTERSTATE WAREHOUSE
CAIRO, ILL.

Pest Reports

Damage By Armyworms

The armyworm, which in 1953 caused widespread damage, is again presenting a problem in several states. During early May control measures were necessary for this insect in Mississippi, Louisiana and Texas. By the middle of the month extensive control was underway in Tennessee with both airplanes and ground equipment being used.

In central and southwestern Kentucky the pest was as numerous as last year and caused damage to small grain and grass crops. Outbreak numbers were present in the southern third of Missouri, but weather was slowing the hatch in the central part of that state. Some control was necessary in southern Illinois and localized areas of North Carolina.

By the latter part of the month small larvae had been reported from Virginia, Maryland, Delaware and Indiana, but control had not started. Iowa and Pennsylvania reported moth flights, but hatching had not begun.

European Corn Borer

Moths of the European corn borer which this year may cause more damage in several states than it did last year, are now beginning to emerge in various corn producing areas. In the eastern part of the United States moths and eggs were observed in Sussex county, Del.

Moths are also out on the Maryland Eastern Shore as well as around College Park. Southern Illinois and Crawford county, Ark., have also reported moths. A survey in 25 southern Minnesota counties showed that approximately 25 per cent of the borers did not survive the winter. There are sufficient borers present to cause a heavy infestation with favorable weather conditions during the egg laying and hatching periods. The first pupation in Iowa for this season was observed in Boone county May 12 which was well ahead of 1953.

A spring survey in Iowa which was conducted earlier showed a survival of 4,183 live borers per acre as compared to 1,759 in 1953. This indicates that a very heavy infestation may occur again in Iowa providing weather factors are favorable. Kansas pupation ranged from 35 to 50 per cent in the northeastern counties. In southeastern South Dakota counties overwintering survival were about 80 per cent.

Grasshoppers

Grasshoppers which apparently are also on the build up this year were beginning to hatch in widely scattered areas. The largest area in Idaho, comprising approximately 232,000 acres in Lincoln, Mindoka and Gooding counties, was showing some hatch May 5.

Hatching was well underway in local areas of Utah and light populations were appearing in Bernalillo county, N. M., May 8. In Arizona nymphs were found in Yuma Mesa alfalfa fields. In Denton, Fannin and Kaufman counties, Tex., local infestations were appearing.

Counts ranging from 10–20 nymphs per square yard were observed in some of the more heavily infested fields of eastern Kansas counties. In field margins of central and southwest Missouri areas, counts were up to 45–55 nymphs per square yard. Hatching had begun in western Iowa and in limited areas of Richland county, Wis.

Based on material received from Economic Insect Survey Station, Plant Pest Control Branch, Agricultural Research Service, USDA, supplemented with information received by FARM CHEMICALS *from Federal and state agencies.*

Mexican Fruit Fly Near Calif. Border

The Mexican fruit fly (*Anastrepha ludens* (Loew)), a pest of citrus occurring in the United States only in the lower Rio Grande Valley of Texas, has been found twice recently in the Tijuana, Baja California, Mexico area. The first fly, a female, was found in the vicinity of Tijuana, Jan. 22. The last collection consisted of one male adult which was trapped in a backyard sapote tree located less than one mile south of the California border.

Prior to the January find, the Mexican fruit fly had not been taken in this section of Mexico. In soil sifting under the tree where the second catch was made two empty pupal cases were found. Arrangements were made with Mexican authorities to spray all hosts in the city of Tijuana. A similar program is underway in a limited area of southern California. These operations are cooperative projects with the California State Department of Agriculture.

Fruit Insect Conditions

In southern New Jersey first brood Oriental fruit moth was causing terminal injury in unsprayed peach trees. The peak spring brood flight occurred in the Vincennes area between April 22–27.

There was a light infestation of the insect in the mountain apple area of Georgia. Moths were taken in early May in Monroe and Niagara counties, N. Y. By the first of May the majority of the larvae had left twigs in Arkansas. Half-grown larvae were found in Pulaski county, Ill., and the Independence, Mo., area the last of April.

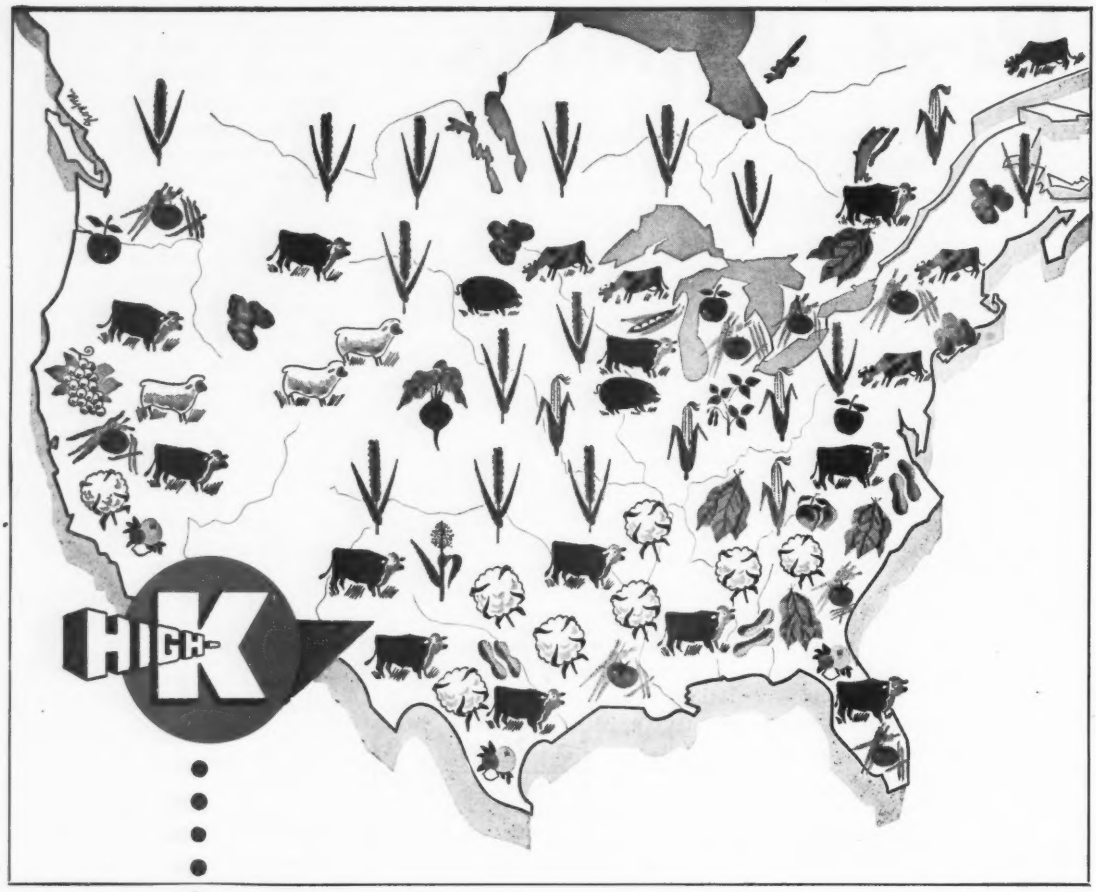
By the middle of the month rosy apple aphid was becoming injurious and widespread in the Kearneysville, W. Va., area and in untreated or improperly treated apple orchards at Vincennes, Ind., and in southern Illinois.

Activity of other major fruit pests including plum curculio, codling moth and spider mites was about normal for the season.

Cotton Insect Activity

Boll weevils were appearing in cotton fields as far north as Florence county, S. C., by May 6. They were being found in the field earlier and in greater numbers in the Waco, Tex., area than for the past several years. Control has been necessary in some Rio Grande valley fields.

Louisiana, Mississippi and Georgia have also reported weevil activity this spring. In contrast to this



Southwest serves agriculture

...by using modern mining facilities and up-to-date processes to produce HIGH-K* Muriate of Potash for plant food manufacturers.

Southwest Potash Corporation

HIGH-K Potash

*Trade-mark

61 BROADWAY ★ NEW YORK 6, N. Y.

situation, survival counts from McNairy county, Tenn., show that very few boll weevils may be expected to emerge in that area this spring.

Bloom inspection results for pink bollworm in the lower Rio Grande valley of Texas are very encouraging. Counts show much lower initial infestation than last year. With the exception of whiteflies, which were heavier than normal and were expected to continue to build up in Arizona, other cotton insect developments were about usual for the time of year.

Tobacco Insects

Tobacco budworms were causing concern in Florida, Georgia and South Carolina early in the month. In the Quincy area of Florida populations appeared earlier and heavier than usual, and caused up to 10 per cent damage in some improperly treated shade-grown tobacco. Georgia had an unusually severe infestation in the Tifton area with at least 90 per cent of the tobacco plants infested. The budworms appeared at Florence, S. C., on tobacco in the field earlier than usual and by May 8 could be found throughout the state.

Tobacco wireworm was also troublesome to tobacco growers in the Carolinas. Replanting was necessary in a number of fields in South Carolina while North Carolina had considerable damage to newly-set plants throughout the eastern area.

Cutworms were numerous in some untreated tobacco seed beds in Connecticut and caused extensive damage to transplants in Pitt, Beaufort and Pamlico counties, N. C. Damage to tobacco plant beds was also reported from Maryland.

Truck Crop Insects

Cutworms were one of the most widespread insect problems of vegetable growers during May. Damage to almost all garden crops was reported from southern Missouri. In the extreme southeast area of this state heavy damage occurred to watermelons and cantaloupes. Shelby county, Tex., had the heaviest infestation in years, while the pests were unusually abundant and caused severe damage to vegetables in the Clarksville area of Tennessee. Large numbers were reported also from the eastern half of this latter state. Damage to gardens occurred in some counties of Utah, and Washington had considerable damage to sugar beets and asparagus in the Yakima valley.

Beet leafhopper movement into the agricultural areas of Utah was underway during the month. Examinations showed that about one per cent of the leafhoppers collected from the southern desert area contained the curly-top virus compared with 12 per cent from northern Utah. In 1953 less than one per cent of the insects were viruliferous from either source.

Populations of the leafhopper were very low in cantaloupe fields in Salt River valley of Arizona, and percentage carrying curly-top was also low. It is of interest that a specimen of beet leafhopper was collected during the second week of May in horseradish fields of Illinois.

Onion maggot flies were emerging in large numbers in the Lake Labish area of Oregon early in the month. Onion growers in this area suffered very heavy losses during 1953 from this insect.

Other Insect Notes

Other important insect notes listed screw-worm infestations in calves from areas of Louisiana and Florida and a case involving a dog was found at Carthage, N. C.

Tent caterpillars, which during the past few years have been of concern in several states, were hatching in Minnesota and Idaho by the middle of May. The outbreak which had been predicted for northwest Oregon was materializing. ◆

CALENDAR

June 10-13—APFC annual meeting, The Homestead, Hot Springs, Va.
June 13—Exec. committee meeting of Fert. sec., Nat. Safety Council, The Greenbrier, White Sulphur Springs, W. Va.
June 14-16—NFA meeting, Greenbrier, White Sulphur Springs, W. Va.
June 14-16—Corn Belt branch, American Soc. of Agronomy meeting, Lincoln, Neb.
June 21-22—Assn. of Southern Feed and Fert. Cont. Officials meeting, Skirvin Hotel, Oklahoma City, Okla.
June 21-24—American Society of Agronomy & Western Soc. of Soil Science, joint meeting, Western branch, Pullman, Wash.
June 22-24—Pacific Slope Branch, ESA meeting, Pilot Butte Inn, Bend, Ore.
June 28-29—N. Central Phytopathological meeting, Ames, Iowa.
July 1-5—9th annual conv., Plant Food Producers of Canada, Manoir Richelieu, Murray Bay, P.Q.
July 12-14—Summer meeting, Northeast branch, Amer. Soc. of Agronomy, New Brunswick, N. J.
July 20-22—Pacific N.W. Plant Food Assn. fert. conf., Klamath Falls, Ore.
July 22-23—Southwest Fert. conf., Buccaneer Hotel, Galveston, Tex.
July 28-30—Beltwide Cotton Mechanization conf., Little Rock, Ark.
Aug. 10-12—Ohio Pesticide Institute summer tour from Wooster to Northwest O.
Aug. 11—Annual Kentucky Fert. conf., Guignol Theater, U. of Ky., Lexington.
Sept. 8-10—NAC meeting, Spring Lake, N. J.

Iowa State Films

Two new films have been produced by the Iowa State College Agricultural Extension Service under the technical direction of extension entomologists. Both are 16mm sound and color films.

The first, "Seed Management Through Insect Control," runs for 16 minutes and shows how to get increased seed yields from forage crops, how to use insecticides without destroying introduced bees and points up measures that must be taken to insure pollination.

"Cutworm Control" is a review of the life cycle and habits of this pest, both ground and aerial varieties. Both farmer and gardener are shown how these habits can be used to advantage in control with new insecticides. Running time is 14 minutes.

Weed Control in Beets

The Wyoming Agricultural Experiment Station has reported that two herbicides, dichloral urea and IPC, help control weeds in sugar beets. Unlike other treatments, neither affected beet yields.

Dichloral urea was applied at 7.3 pounds per acre and IPC at four pounds. The first controlled 39 per cent of the weeds and the latter 56 per cent. Field trials demonstrated that treatment must be used before beets are planted or appear above ground.

Field trials demonstrated that best control was established when

fields were sprayed with the herbicide, disked and then planted.

It is also reported that one-year tests indicate dalapon will remove seedling grasses from sugar beet plantings.

Inverted Soils Best

Trees grow better in "upside-down" soil—that's a conclusion that might be drawn from forest soil experiments recently reported by Robert R. Lindahl, a graduate student at Yale University at the time research was done, and Dr. Herbert A. Lunt, soils scientist at Connecticut Agricultural Experiment Station.

To find out more about the relationship between nutrient intake and root development of trees, the two Connecticut researchers grew hybrid poplar cuttings and rooted white pines in large steel cylinders, where the topsoil was placed at the bottom and the subsoil put on the surface. Similar trees were grown in cylinders with normally arranged soil horizons for purposes of comparison. In the case of poplars, the growth was twice as great on the "upside down" soil. White pine showed a smaller increase.

Under usual growing conditions, the most fertile portion of the soil is at the surface, where it tends to dry out. With the upside down soil, the fertile topsoil was at the bottom, where it remained constantly moist, and roots reaching down into it could easily extract the nutrients necessary for tree growth.

Another factor promoting increased growth on the "inverted" soil was the absence of weed competition. The subsoil contained practically no weed seeds, and weeds from the surrounding area were slow to come in.

By-Product Acid in 1953

Production of by-product sulfuric acid at copper and zinc plants in 1953 was 868,000 short tons (basis, 100 per cent), an increase of about 1,000 tons over 1952. This was the largest output since 1944, according to the Bureau of Mines.

Increased production of acid at copper plants slightly more than offset the drop at zinc facilities.

Feb. Sulfur Figures

During February, the domestic sulfur industry produced 437,244 long tons of native material and 27,000 tons of recovered sulfur (97 per cent or greater purity), according to the Bureau of Mines. Producers' stocks of native sulfur increased and stood at 3,169,556 tons at the end of the month.

Super Production Up

Superphosphate production during February amounted to 187,019 short tons (100 per cent APA) according to the Bureau of the Census, an increase of two per cent over the January output and seven per cent above the figure for February, 1953.

Shipments of all grades totaled 125,814 tons, up 13 per cent over the previous month, and three per cent over the 1953 period. Stocks on hand at the end of the month were six per cent less than those held on Feb. 1, but were 12 per cent more than quantities on hand as of Feb. 28, 1953.

Production — February, 1954

Compiled from government sources

Chemical	Unit	February 1954	February 1953	January 1954
Ammonia, synth. anhydrous	s. tons	206,358[1]	173,857	*209,972
Ammonia liquor, coal & coke—(NH_3 content)	pounds	3,035,913	3,910,195	4,140,199
Ammonium nitrate, fert. grade (100% NH_4NO_3)	s. tons	120,265	100,780	134,726
Ammonium sulfate				
synthetic (technical)	s. tons	63,193	56,693	58,799
coke oven by-product	pounds	133,869,544	146,652,925	150,298,285
BHC (Hexachlorocyclohexane)	pounds	———	———	4,748,298
Gamma content	pounds	———	———	628,788
Calcium arsenate (commercial)	pounds	———	926	———
Copper Sulfate (gross)	s. tons	5,152	———	5,108
DDT	pounds	———	———	7,769,963
2,4-D Acid	pounds	———	———	1,797,614
esters & salts	pounds	———	———	1,094,794
esters & salts, (acid equiv.)	pounds	———	———	854,071
Lead Arsenate (acid & basic)	s. tons	———	———	1,026
Phosphoric acid (50% H_3PO_4)	s. tons	235,268[1]	199,765	*248,636
Sulfur, Native (Frasch)	l. tons	437,244	381,532	468,559
Recovered	l. tons	27,000	25,758	28,000
Sulfuric Acid, gross (100%, H_2SO_4)	s. tons	1,092,447	1,116,994	*1,182,419
Chamber process (100% H_2SO_4)	s. tons	216,578	240,030	223,163
Contact process (100% H_2SO_4)	s. tons	875,869	876,964	*959,256
Superphosphate (100% APA)	s. tons	187,019	174,494	*183,643
Normal & enriched (100% APA)	s. tons	143,637	137,222	*136,165
Concentrated (100% APA)	s. tons	42,809	36,127	*46,993
Wet base (100% APA)	s. tons	573	1,145	*485
2,4,5-T Acid	pounds	———	———	192,093

* Revised.

[1] Includes quantities for one plant previously not reporting.

FERTILIZER MATERIALS MARKET

New York

May 12, 1954

Sulfate of Ammonia. Producers are in a much easier position as far as stocks on hand are concerned and in some cases have sold their entire production through the month of June. No price changes were reported.

Nitrate of Soda. Stocks are available at various ports and shipments are being maintained against existing orders.

Ammonium Nitrate. This material reported in better supply because of the approach of the end of the fertilizer season. Demand, however, continues excellent.

Urea. Imported material offered at $120 per ton, f.o.b. Northern Atlantic ports, with demand fair. No shortage has been reported this season.

Nitrogenous Tankage. This material is currently quoted at from $3 to $4 per unit of ammonia ($3.64 to $4.80 per unit N), according to shipping point. Demand has been fairly good recently.

Castor Pomace. With one large producer reportedly shutting down, the supply picture has tightened up considerably and last sales were made on basis of $27 per ton, f.o.b. production point. Producers are not inclined to sell very far ahead until they can get a better picture of production over the balance of the year.

Organics. Prices of most organic fertilizer materials remained firm, but buying interest started to slacken with the end of the fertilizer season rapidly approaching. Soybean meal, after hitting a high price of $105 per ton in bulk, f.o.b. Decatur, Ill., slumped to $95 per ton. Linseed meal was nominal due to lack of offerings, and cottonseed meal in bags last sold at $76 per ton, f.o.b. Memphis, for prompt shipment. Last sales of tankage were made at $8.25 per unit of ammonia ($10.02 per unit N), f.o.b. New York, with dried blood selling at $8.50 ($10.33 per unit N), f.o.b. New York.

Fish Meal. Some contracts were reported made for new catch menhaden fish scrap on a "when and if made basis" of $130 per ton, f.o.b. fish factories. Fish meal for quick shipment was quoted at about $145 per ton, f.o.b. production points, with some imported material also arriving.

Bone Meal. This material is in a well sold position with last sales made on basis of $62 to $65 per ton, f.o.b. shipping points. The demand from the feed trade recently has been exceptionally heavy.

Hoof Meal. This market is steady with last sales on basis of $7.50 per unit of ammonia ($9.12 per unit N), f.o.b. Chicago.

Superphosphate. Stocks of regular 20 per cent material are ample to take care of this season's expected demand and triple super is gradually easing up from a supply standpoint as more producers start production.

Potash. Prices for the new season have been announced by domestic producers and while the price remains the same f.o.b. Carlsbad, some adjustment has been reported made at various ports to meet foreign competition. One producer named a price on 60 per cent muriate of 61½ cents per unit f.o.b. port, which is subject to a small discount if taken over a 12 month period.

Philadelphia

May 10, 1954

The general position in raw materials is stronger. Tankage, blood and bone meal have advanced in price. Nitrate of ammonia, anhydrous ammonia, castor pomace and triple superphosphate are in very tight supply position. Other materials are moving with fair seasonal regularity.

Nitrate of Ammonia. While production is ahead of last season and is practically all under contract, the supply is still insufficient to meet the demand, and deliveries are in arrears.

Sulfate of Ammonia. The market is fairly steady with sufficient demand to deplete inventories. In fact, some contract shipments are reported behind schedule.

Nitrate of Soda. Seasonal movement is increasingly satisfactory, and the supply continues to be adequate.

Blood, Tankage, Bone. Blood and tankage continue in strong position and prices have advanced. Blood is quoted at $8.50 per unit ammonia ($10.33 per unit N) in the East, and $9 ($10.94 per unit N) in Chicago area. Tankage is priced at $8.25 ($10.02 per unit N) in the East and $9.25 ($11.24 per cent N) Chicago. Steamed bone is quoted at $62 per ton, with hoof meal $7.75 per unit ammonia ($9.42 per unit N).

Castor Pomace. Because of short production, nothing is being offered at this time. Last sale was at $27 per ton at producting plant.

Fish Scrap. While menhaden meal is quoted at $145 per ton, this is entirely nominal since no supplies are obtainable. The new catch is quoted at $135 per ton "if and when."

Phosphate Rock. Shipments are reported moving satisfactorily with surplus stocks well cleaned up, and the market is in satisfactory seasonal position.

Superphosphate. Triple grade continues to be quite scarce. Production of normal grade is somewhat ahead of last year and supply is in excess of demand. A surplus accumulation is anticipated.

Potash. Contract withdrawals continue to move on fairly good schedule and supplies are fully adequate.

MONARCH SPRAYS

This is our Fig. 645 Nozzle. Used for Scrubbing Acid Phosphate Gases. Made for "full" or "hollow" cone in brass and "Everdur." We also make "Non-Clog" Nozzles in Brass and Steel, and

Stoneware Chamber Sprays

now used by nearly all chamber spray sulphuric acid plants.

CATALOG 6-C

MONARCH MFG. WORKS, INC.
2501 East Ontario Street, Philadelphia, Pa.

Dictionary of Fertilizer Materials & Terms

A reference booklet for all who are interested in the manufacture and use of chemical fertilizers. It's "priceless" to agricultural chemists and fertilizer salesmen.

Price **$1.00** postpaid

farm chemicals 317 N. Broad Street Philadelphia 7, Pa.

FEEDING AND FERTILIZER MATERIALS

(SINCE 1898)

o

SAMUEL D. KEIM

1343 ARCH STREET

PHILADELPHIA 7, PA.

WANTED

33% AMMONIUM NITRATE
PREMIUM PRICES
Box No. 460
Farm Chemicals, Philadelphia 7.

SHUEY & COMPANY, Inc.

Specialty: Analysis of Fertilizer Materials and Phosphate Rock. Official Chemists for Florida Hard Rock Phosphate Export Association. Official Weigher and Sampler for the National Cottonseed Products Association at Savannah; also Official Chemists for National Cottonseed Products Association.

115 E. BAYSTREET, SAVANNAH, GA.

WILEY & COMPANY, Inc.

Analytical and Consulting Chemists

BALTIMORE 2, MD.

UREA

CASTOR POMACE
BONEMEAL

• Stocks Available at Most Ports •

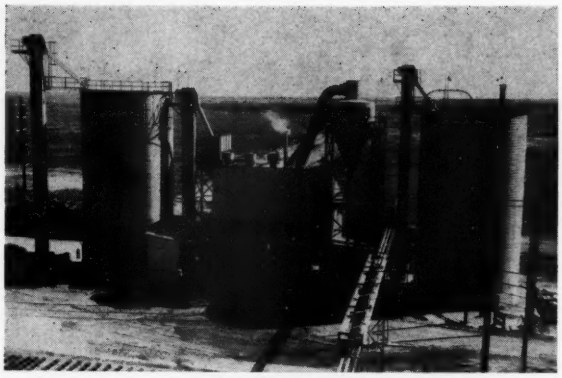
NITROGENOUS TANKAGE
SHEEP MANURE

ALL FERTILIZER MATERIALS

Send Us Your Inquiries

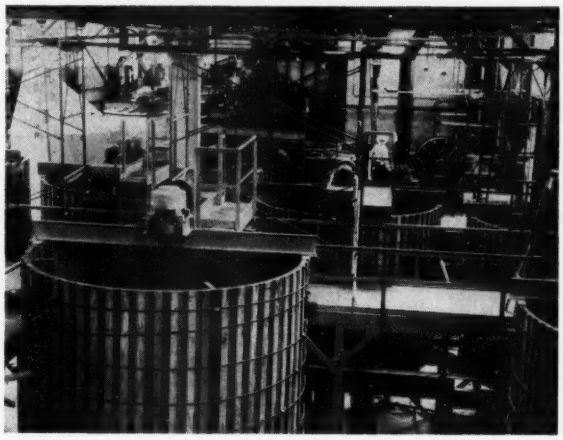
FRANK R. JACKLE

405 Lexington Ave. New York 17, N. Y.



ABOVE: The new $8.5 million plant, located in Texas City, Tex., has started producing Dikal and Texaphos.

BELOW: Interior view of the chemical company's plant.



Texas Plant Open

Dicalcium phosphate production has started at the new $8.5 million plant of Texas City Chemical Co., in Texas City, Tex.

The material is being produced at the rate of 70,000 tons per year—55,000 of feed grade under the trade name Dikal and the remainder fertilizer grade Texaphos.

Uranium Extracted

Of equal importance to the country is the fact that in the company's process uranium, vitally needed by the Atomic Energy Commission, is extracted. The company has a contract to supply uranium concentrate to AEC.

Bradley & Baker Are Distributors

Exclusive distributors for both Dikal and Texaphos, Bradley & Baker, have set up a district office in Houston, headed by C. Leonard Gemmel, to take care of the new Texas City output which will be shipped all over the United States. Texaphos fertilizer will be sold mainly in Texas, Louisiana, Oklahoma and New Mexico. ◆

Alphabetical List of Advertisers

American Agricultural Chemical Co., New York City 16
American Potash & Chemical Corp., New York City 2
Armour Fertilizer Works, Atlanta, Ga. 52
Ashcraft-Wilkinson Co., Atlanta, Ga. 42, 56
Atlanta Utility Works, The, East Point, Ga. 62
Baker & Bro., H. J., New York City ..... —
Berkshire Chemicals Inc., New York City 44
Bradley & Baker, New York City 46
Bradley Pulverizer Co., Allentown, Pa. 5
Butler Manufacturing Co., Kansas City, Mo. 12, 13
Chemical Construction Corp., New York City 41
Clark Equipt. Co., Battle Creek, Mich. 19
Commercial Solvents Corporation, New York City ..... —
Davison Chemical Corporation, Baltimore, Md. 34
Diamond Alkali Co., Newark, N. J. 20
Duval Sulphur & Potash Co., Houston, Tex. ..... —
Dave Fischbein Co., Minneapolis, Minn. 7
General Industrial Development Corp., New York City ..... —
Grand River Chem. Div., Deere & Co., Tulsa, Okla. ..... Second Cover
Gruendler Crusher & Pulverizer Co., St. Louis, Mo. ..... —
Hammond Bag & Paper Co., Wellsburg, W. Va. ..... —
Hudson Pulp & Paper Corp., New York City ..... —
International Paper Co., Bagpak Div., New York City ..... —
International Minerals & Chemical Corp., Chicago, Ill. ..... Back Cover
Jackle, Frank R., New York City 62
Keim, Samuel D., Philadelphia, Pa. 62
Kraft Bag Corporation, New York City ..... —
Lessmann Mfg. Co., Des Moines, Ia. 48
Link-Belt Co., Chicago, Ill. 8
Lion Oil Company, El Dorado, Ark. 24, 25
Marietta Concrete Corp., Marietta, Ohio ..... —
Michigan Chemical Corp., St. Louis, Mich. ..... —
Monarch Mfg. Works, Inc., Philadelphia, Pa. 62
Monsanto Chemical Co., St. Louis, Mo. ..... —
National Lime & Stone Co., Findlay, Ohio 52
Nitrogen Division, Allied Chemical & Dye Corp., New York City ..... Front Cover
Pennsylvania Salt Mfg. Co., Philadelphia, Pa. ..... —
Phillips Chemical Co., Bartlesville, Okla. 54
Pioneer Pyrophyllite Producers, Beverly Hills, Calif. 56
Pittsburgh Coke & Chemical Co., Agricultural Chemical Div. 32
Potash Co. of America, Washington, D. C. ..... Third Cover
Poulsen Co., Los Angeles, Calif. ..... —
Power—Curve Conveyor Co., Denver, Colo. 11
Republic Chemical Corp., New York City 14
Schmutz Mfg. Co., Louisville, Ky. 36
Shell Chemical Corporation, Denver, Colo. ..... —
Shuey & Company, Inc., Savannah, Ga. 62
Southwest Potash Corporation, New York City 58
Spraying Systems Co., Bellwood, Ill. 56
Stedman Foundry and Machine Co., Inc., Aurora, Ind. 52
Summit Mining Corp., Carlisle, Pa. ..... —
Tennessee Corporation, Atlanta, Ga. 9, 38
Texas Gulf Sulphur Co., New York City ..... —
The Thomas Alabama Kaolin Co., Baltimore, Md. 48
Union Bag & Paper Corp., New York City 1
U. S. Industrial Chemicals Co., New York City 44
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla. 48
United States Potash Co., New York City 50
Wiley & Company, Inc., Baltimore, Md. 62
Wiley & Sons, John, New York City ..... —
Woodward & Dickerson, Inc., Philadelphia, Pa. 44

editorial

Solution for Surpluses

A "COMPLETE solution" to the problem of farm surpluses, through increased fertilizer usage, has been described by Russell Coleman, NFA president. The *NFA Fertilizer News* recently commented on the talk given by Dr. Coleman before an agronomy seminar at North Carolina State College.

His recommended technique is to get all farmers to fertilize all crops in accordance with experiment station recommendations. Although this would result in increased yields per acre, the substantially reduced product costs per unit would make possible reduced plantings, while at the same time farm profits would be maintained or increased.

As examples of the results of such a move, Coleman pointed out that the corn crop could be reduced from three to two billion bushels without a financial loss to farmers, and cotton growers could cut production by three-and-a-half million bales and still realize the same net income.

He also stated that wheat producers could reduce their production from 1.1 billion bushels to as low as 385 million without losing money. Needless to say, Coleman added that strict production controls on all crops would be essential to the success of such a plan, or increased production would be the end product.

It is interesting to ponder the potential capacity of our agricultural plant under such a program with, in addition to effective fertilizer application, the accumulative benefits derived through use of seed disinfectants, pre- and post-emergence herbicides, soil conditioners, insecticides, fungicides, soil fumigants and other farm chemicals.

THE program of the National Agricultural Limestone Institute convention in Chicago included an excellent panel discussion on the promotion of agricultural limestone. Its purpose was to highlight ideas currently used to supplement institute activities.

We are including some of the promotional schemes outlined in this panel as examples of how a related industry planned to fight depressed business conditions expected to result through a reduction in Federal conservation program spending. Some of them may prove useful in assuring your share of the farm chemical business.

One producer reported that his company has begun to use radio advertising throughout the year, rather than only in the spring and fall as was the previous practice. Radio spots are carried three times a week to supplement use of the institute's mats, releases and pamphlets.

This company uses the billboard posters developed by the Iowa Agricultural Limestone Association and also has permanent-type signboards in use. While citing diverse promotional activities, the speaker emphasized the value of personal contacts in gaining new business.

Several speakers mentioned activities at county fairs as another means of gaining public notice. One midwest company always takes space at local fairs and has on hand free ice water, pencils for the children and chairs for the comfort of visitors at the fair. Another organization regularly conducts contests and awards prizes at fairs in its area.

One company, the free ice water organization mentioned above, harnesses a wide variety of promotional gimmicks to spread name and fame—extensive use of advertising billboards; free calendars to 4-H members; match packs distributed to feed stores, lumber yards and banks; scratch pads with slogans; thermometers, etc. Other advertising efforts include movie trailers at local theaters and advertising space in newspapers, telephone books, school annuals and other media. Direct mail pieces are extensively used.

SERVICES are stressed by some aglime companies —movies are shown at farm organization meetings; materials are furnished for test plots; one company keeps a truck available for farm delivery and another stresses the idea of complete soil conservation, selling the farmer on use of fertilizer, drainage, liming, terracing, etc. and is equipped to contract the entire service.

A Missouri producer sent five selected farmers to Lancaster county, Pa., to see firsthand the results of extensive lime and fertilizer usage over a long period. As a result, his representative claimed that sales climbed to a very satisfactory level in a period of two years.

This company has also worked out a financing program in cooperation with local banks whereby a complete package, including lime and fertilizer, can be financed.

These are just a few of the ideas brought forth during the aglime promotion panel—and many of them, when properly handled, have a great deal of merit. There is certainly no argument to the idea that promotion is necessary and should be utilized whenever possible through all available media.

Use promotion gimmicks to attract customers, but don't count on such activities to hold them—only good and continued service can do that.

—GEORGE P. TEEL, JR.
Managing Editor

163—Link-Belt Martenet Process

A granular, homogeneous, free-flowing fertilizer is produced by the Link-Belt Martenet process. Present facilities can be adapted to use this method and features include low cost installation, low operating cost and low raw material cost. Only low cost nitrogen materials are utilized and all ratios are produced in a very high degree of plant food concentration. More information in Book 2459.

CIRCLE 163 ON SERVICE CARD

164—New Emcol Emulsifier

A complete technical bulletin describing the versatile new toxicant emulsifier, Emcol H-85A, is available from Emulsol Corp. It provides information on physical and chemical properties, shipments, etc. and covers 12 formulations involving nine different pesticides that are adaptable for broad water-hardness conditions.

CIRCLE 164 ON SERVICE CARD

165—Handling Fert. Materials

Sauerman Bros. has issued a field report on the handling of fertilizer materials through application of its drag scraper machines. These units are now widely used for feeding car loaders, feeding and reclaiming from mixers and grinders, stockpiling and reclaiming materials and cleaning acidulating dens. For indoor or outdoor use the scrapers work well in limited areas and are easily and inexpensively installed.

CIRCLE 165 ON SERVICE CARD

166—Tetrine Bulletin

[illegible]n tetrines and related products are [illegible]d in the latest Glyco Products bulletin. Used to cure and prevent iron deficiencies, various types are available formulated for use on alkaline or acid soils. One product has the tetrine absorbed on vermiculite in granular form. The company points out that foliage applications of the tetrines have given successful results.

CIRCLE 166 ON SERVICE CARD

167—Liquids to Solids

Terra-Lite vermiculite from Zonolite Co. turns liquid chemicals into free-flowing solids, according to new descriptive literature. The lightweight mineral carrier produces a free-flowing product even when mixed with a high percentage of chemicals. For more information

CIRCLE 167 ON SERVICE CARD

168—New Fiber Drums

A new line of fiber and fiber-metal drums and shipping containers has been developed by Rheem Mfg. Co. The products are well suited to farm chemicals and are available with various simple-to-use closures which provide maximum security against breakage or leakage. Sizes run from one to 32 gallons in all fiber units and five to 60 gallons in fiber-metal units.

CIRCLE 168 ON SERVICE CARD

FREE INFORMATION to help you solve fertilizer, pesticide problems

Reader Service

169—Prentox Cube

Every 5,000 pounds of cube from Prentiss Drug & Chemical is batch blended and analyzed for rotenone content to guarantee a genuinely standardized powder. It's recommended for your quality formulations and for greater profits.

CIRCLE 169 ON SERVICE CARD

170—NH_3 Safety Kit

Recognizing the rapidly expanding interest in farm use of anhydrous ammonia, Mine Safety Appliances has introduced an NH_3 first aid kit containing all necessary materials for treatment. A metal, all-weather container is included. If interested

CIRCLE 170 ON SERVICE CARD

How to use the READER SERVICE CARD

- **Circle number of literature you want.**
- **Print or type your name, position, company and address.**
- **Clip and mail the Service Card.**

171—Tergitol Surfactants

The Carbide & Carbon Chemicals line of Tergitol surface active agents includes six non-ionics for detergents, wetting agents, dispersants and emulsifiers and five anionics, wetting and penetrating materials for dilution of concentrated solutions of acids, alkalies and salts. Detailed technical literature is available.

CIRCLE 171 ON SERVICE CARD

172—Masks for Malathion

A new series of masking odors for malathion has been developed by Dodge and Olcott. Technical malathion has presented a difficult deodorizing problem but this special group of masks is highly satisfactory, according to the manufacturer, when used at the rate of about one per cent.

CIRCLE 172 ON SERVICE CARD

173—Low Priced Loader

Baker-Lull Corp.'s Shoveloader is claimed to have the lowest price in its class. The 12 cubic foot Model 20 has a seven foot lifting height, 1500 pound load carrying capacity and 14mph top travel speed. It is designed to provide full visibility, and has easily controlled bucket action with moving bucket arms always in front of the operator. Full information is available.

CIRCLE 173 ON SERVICE CARD

174—Ethylene Dichloride

A number of farm chemical applications are claimed for ethylene dichloride by Jefferson Chemical. Applications include use in fruit degreening; soil, mill, granary, warehouse and household fumigants; solvents and chemical intermediates. It is available in tank cars, tank wagons and 55 gallon drums.

CIRCLE 174 ON SERVICE CARD

175—New D-K Mixer

Latest addition to the Davison-Kennedy line is a fertilizer mixer available in one-half, one and two ton capacities. It is of heavy-duty construction, high carbon, high wear resistant steel plate with flights arranged to give complete mixing of dry and semi-dry materials in the shortest possible cycle. Charge and discharge gates are hand or air operated.

CIRCLE 175 ON SERVICE CARD

176—Alanap Data

A booklet from Naugatuck Chemicals summarizes current information on Alanap formulations. It is designed to serve as a reference file for data on crop and weed response and will also be of service to the researcher in setting up Alanap trials.

CIRCLE 176 ON SERVICE CARD

177—Xylol-Type Solvent

Crowley Tar Products No. 150 xylol-type solvent is a low cost product for emulsifiable concentrates. It has high solvent power, low phytotoxicity, quick evaporation, low weight and a non-red label. Crowley offers 24 hour shipments in tank cars or transports. Delivered prices are available.

CIRCLE 177 ON SERVICE CARD

178—New Fert. Spreader

The Henderson 'Chief' lime and fertilizer spreader is engineered and built to provide custom operators with longer-life equipment, lower maintenance costs and more profitable operation. The units are available in nine, 11, 13 and 15 foot lengths. For additional information and literature

CIRCLE 178 ON SERVICE CARD

179—Mineralize Your Mixes

Tennessee Corp. points out that addition of essential minerals to your fertilizer mixes will stimulate sales, produce more satisfied customers and increase tonnage and dollar profits. Mineralized fertilizers are in demand and results show that such foods produce greater yields and higher profits. For detailed information on Tennessee trace minerals

CIRCLE 179 ON SERVICE CARD

180—Filtercool Mask

A new General Scientific dust mask for farm tractor operators, the air conditioning Filtercool, provides complete protection while permitting effortless breathing. The air supply is easily regulated, and installation to the tractor engine is simple with all parts supplied. Costs just under $20. For more information

CIRCLE 180 ON SERVICE CARD

181—For Pesticide Sprays

Developed by Sharples Chemicals, Inc., Nonic 300 is a wetting and emulsifying agent suggested for use with agricultural sprays. It is effective over a wide range of water hardness, *p*H and temperatures and is reported soluble in water, many chlorinated compounds, alcohols, ketones, esters and aromatic hydrocarbons. A data sheet is available.

CIRCLE 181 ON SERVICE CARD

182—Simplex Testing

A new catalog is available on Simplex soil testing kits from the Edwards Laboratories. Commercial units, easy, quick and accurate, are available in three sizes. The producer points out that on-the-spot tests can increase your fertilizer sales.

CIRCLE 182 ON SERVICE CARD

183—Dual N Source

Calmonite, ammonium nitrate limestone, is available in multi-wall bags through H. J. Baker, f.o.b. regular Atlantic and Gulf ports. This economic nitrogen source contains 20.5 per cent nitrogen in both nitrate and ammonia form and in addition supplies calcium. It is produced in green ready-to-use pellets sized for flow and ease of application. For more information

CIRCLE 183 ON SERVICE CARD

184—New Hough Catalog

The Frank G. Hough Co. has issued a new catalog on the model PAC Payloader. A torque converter drive provides faster and easier operation, full engine power, infinite operating speeds, precise control and lower maintenance. This model has 16 cu. ft. capacity (12 cu. ft. struck), full reversing transmission, automatic bucket tip-pack, short turning radius, hydraulic brakes and either gas or diesel power. For a bulletin with full specifications

CIRCLE 184 ON SERVICE CARD

185—Speed Fert. Curing

Sulframin AB 40 powder from Ultra Chemical Works in an efficient form of surfactant designed to speed fertilizer curing and reduce blocking in the pile and bag. For samples and prices

CIRCLE 185 ON SERVICE CARD

How to use the
READER SERVICE CARD

- **Circle number of literature you want.**
- **Print or type your name, position, company and address.**
- **Clip and mail the Service Card.**

186—Insecticide Grinding

Raymond Whizzer equipped IMP mills simplify insecticide grinding while providing high fineness, uniformity, intimate blending and operating economy. One simple adjustment provides for wide range fineness control, and the air separation system also serves as a cooling medium so that lower mill temperatures permit longer operating runs. For a catalog describing these units

CIRCLE 186 ON SERVICE CARD

187—Diazinon Approved

Diazinon, a new Geigy insecticide, has been approved for use in fly control work. Tests have shown its value in control of house flies resistant to chlorinated hydrocarbons. Two formulations are available —a 25 per cent wettable powder and a one per cent bait. The material is intended for non-dairy barns, sheds and poultry houses and should not be applied to food processing plants, houses, dairy barns, etc. To obtain the latest data sheet.

CIRCLE 187 ON SERVICE CARD

188—Carboline Coatings

A new bulletin on Carboline Co. corrosion resistant coatings, linings and surfacing materials places corrosive service conditions in broad classifications and estimates the life of Carboline products in each. Practical limitations are made clear in this attempt to define material serviceability, cost and life. For a copy

CIRCLE 188 ON SERVICE CARD

189—A Better Carrier

Formulators will be interested in Pike's Peak absorbent clay carrier and diluent from General Reduction Corp. The material has a high degree of absorbency, extremely fine particle size, uniformly low moisture and *p*H of about 5. The standard guaranteed grind is 95 per cent through 325 mesh but there is a variety of particle sizes to meet specifications. For a sample

CIRCLE 189 ON SERVICE CARD

190—Karmex-W

A new DuPont booklet describes weed control with Karmex-W, a substituted urea herbicide which has given excellent control at extremely low dosages. Available as a wettable powder ready to mix with water, the material is not flammable, volatile or corrosive. Only a few pounds per acre are needed for control of annual weeds and grasses, so the material has many applications wherever complete control of all vegetation is desired.

CIRCLE 190 ON SERVICE CARD

191—F & B Fertilizers

A new four page booklet from Faesy & Besthoff covers the company's complete line of quality plant foods. It contains descriptions and recommended uses for all F&B fertilizers including the pelletized all purpose 6-12-6 and a 15-30-15 startergrower.

CIRCLE 191 ON SERVICE CARD

192—Ful-Flex Sleeve

The Ful-Flex sleeve for multiwall bags is larger than any similar type and is completely engineered by Fulton to reduce sifting. Special flexible paper combined with the new design gives extra tie sealing action and with its longer e the sleeve is sewn in more securely. Available at regular prices. For more information

CIRCLE 192 ON SERVICE CARD

193—Hypro Pump

Model 750 direct drive tractor pump from Hypro Engineering will handle liquid fertilizers with a minimum of wear and is also effective for use with pesticide materials. The pump has a pressure range from 0 to 350 psi and features stainless steel seals and steel inserts in nylon rollers. It slips directly on the tractor power-takeoff shaft without use of pulleys or belts.

CIRCLE 193 ON SERVICE CARD

194—Bin Level Controls

Bin-Dicator Co. offers a catalog which describes completely its entire line of pressure-actuated bin level indicators. Included is complete installation data for various types of units with mounting on thick or thin walled bins, inside or outside locations and suspended interior installations. Several new and improved models are available. To obtain a catalog

CIRCLE 194 ON SERVICE CARD

Buyers' Guide

Classified Index to Advertisers in 'Farm Chemicals'

ALDRIN

Ashcraft-Wilkinson Co., Atlanta, Ga.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.
Shell Chemical Co., Agr. Chem. Div., Denver, Colo.

AMMONIA—Anhydrous and Liquor

Commercial Solvents Corporation, New York City
Grand River Chem. Div., Deere & Co., Tulsa, Okla.
Lion Oil Co., El Dorado, Ark.
Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C.
Phillips Chemical Co., Bartlesville, Okla.
Spencer Chemical Co., Kansas City, Mo.

AMMONIUM NITRATE

Ashcraft-Wilkinson Co., Atlanta, Ga.
Commercial Solvents Corporation, New York City
Lion Oil Co., El Dorado, Ark.
Phillips Chemical Co., Bartlesville, Okla.
Spencer Chemical Co., Kansas City, Mo.

AMMONIUM PHOSPHATE

Monsanto Chem. Co., St. Louis, Mo.

AMMONIUM SULFATE

See Sulfate of Ammonia

AMMONIUM SULFATE NITRATE

Baker & Bro., H. J., New York City

BAGS—Multiwall-Paper

International Paper Co., Bagpak Div., N. Y. C.
Hammond Bag & Paper Co., Wellsburg, W. Va.
Hudson Pulp & Paper Corp., N. Y. C.
Kraft Bag Corporation, New York City
Union Bag & Paper Corp., New York City

BAGS—Dealers and Brokers

Ashcraft-Wilkinson Co., Atlanta, Ga.

BAG CLOSING MACHINES

Fischbein Co., Dave, Minneapolis, Minn.
International Paper Co., Bagpak Div., N. Y. C.

BAG PRINTING MACHINES

Schmutz Mfg., Louisville, Ky.

BAG FILLING MACHINES

Atlanta Utility Works, The, East Point, Ga.
Stedman Foundry and Machine Co., Aurora, Ind.

BHC AND LINDANE

Ashcraft-Wilkinson Co., Atlanta, Ga..
Diamond Alkali Co., Newark, N. J.
Pennsylvanja Salt Mfg. Co., Philadelphia, Pa.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.

BONE PRODUCTS

American Agricultural Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
Jackle, Frank R., New York City
Woodward & Dickerson, Inc., Philadelphia, Pa.

BORAX AND BORIC ACID

Woodward & Dickerson, Inc., Philadelphia, Pa.

BROKERS

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
Jackle, Frank R., New York City
Keim, Samuel D., Philadelphia, Pa.
Woodward & Dickerson, Inc., Philadelphia, Pa.

BUCKETS—Hoist, Crane, etc.

Hayward Company, The, New York City

CALCIUM ARSENATE

American Agricultural Chemical Co., N. Y. C.

CARS AND CART

Atlanta Utility Works, The, East Point, Ga.
Stedman Foundry and Machine Co., Aurora, Ind.

CASTOR POMACE

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City

CHEMISTS AND ASSAYERS

Shuey & Co., Inc., Savannah, Ga.
Wiley & Company, Baltimore, Md.

CHLORDANE

Ashcraft-Wilkinson Co., Atlanta, Ga.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.

CLAY

Ashcraft-Wilkinson Co., Atlanta, Ga.

CONDITIONERS

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Jackle, Frank R., New York City
Keim, Samuel D., Philadelphia, Pa.
National Lime & Stone Co., Findlay, Ohio

CONVEYORS

Power-Curve Conveyor Co., Denver, Colo.
Link-Belt Co., Chicago, Ill.

COPPER SULFATE

Tennessee Corp., Atlanta, Ga.

COTTONSEED PRODUCTS

Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, N. Y. C.
Jackle, Frank R., New York City
Woodward & Dickerson, Inc., Philadelphia, Pa

DDT

Ashcraft-Wilkinson Co., Atlanta, Ga.
Diamond Alkali Co., Newark, N. J.
Monsanto Chemical Co., St. Louis, Mo.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.

DIELDRIN

Ashcraft-Wilkinson Co., Atlanta, Ga.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.
Shell Chem. Corp., Agr. Chem. Div., Denver, Colo.

DILUENTS

Ashcraft-Wilkinson Co., Atlanta, Ga.
Pioneer Pyrophyllite Producers, Beverly Hills, Calif.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.
Summit Mining Corporation, Carlisle, Pa.
Thomas Alabama Kaolin Co., Baltimore, Md.

DITHIOCARBAMATES

Berkshire Chemicals, New York City

ELEVATORS

Power-Curve Conveyor Co., Denver, Colo.
Link-Belt Co., Chicago, Ill.
Stedman Foundry and Machine Co., Aurora, Ind.

ENGINEERS—Chemical and Industrial

Chemical Construction Corp., New York City
Fairlie, Inc., Andrew M., New York City
General Industrial Development Corp., N. Y. C.
Marietta Concrete Corporation, Marietta, Ohio
Stedman Foundry and Machine Co., Aurora, Ind.
Titlestad Corporation, Nicolay, New York City

FERTILIZER—Mixed

American Agricultural Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Davison Chemical Corporation, Baltimore, Md.
International Min. & Chem. Corp., Chicago, Ill.

FILLERS

Bradley & Baker, N. Y. C.

FISH SCRAP AND OIL

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
Jackle, Frank R., New York City
Woodward & Dickerson, Inc., Philadelphia, Pa.

FULLER'S EARTH

Ashcraft-Wilkinson Co., Atlanta, Ga.

FUNGICIDES

American Agricultural Chemical Co., N. Y. C.
Berkshire Chemicals, New York City
Pittsburgh Coke & Chemical Co., Agr. Chem. Div., Pittsburgh, Pa.
Tennessee Corp., Atlanta, Ga.

HERBICIDES

Diamond Alkali Co., Newark, N. J.
Lion Oil Company, El Dorado, Ark.
Monsanto Chemical Co., St. Louis, Mo.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.

HERBICIDES—Oils

Lion Oil Company, El Dorado, Ark.

HOPPERS & SPOUTS

Atlanta Utility Works, The, East Point, Ga.
Stedman Foundry and Machine Co., Aurora, Ind..

IMPORTERS, EXPORTERS

Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Berkshire Chemicals, New York City
Woodward & Dickerson, Inc., Philadelphia, Pa.

INSECTICIDES

American Agricultural Chemical Co., N. Y. C.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Berkshire Chemicals, New York City
Diamond Alkali Co., Newark, N. J.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div. Pittsburgh, Pa.
Shell Chem. Corp., Agr. Chem. Div., Denver, Colo.
U. S. Industrial Chemicals Co., New York City

IRON SULFATE

Tennessee Corp., Atlanta, Ga.

KAOLIN

Thomas Alabama Kaolin Co., Baltimore, Md.

LEAD ARSENATE

American Agricultural Chemical Co., N. Y. C.

LIMESTONE

American Agricultural Chemical Co., N. Y. C.
Ashcraft-Wilkinson Co., Atlanta, Ga.
National Lime & Stone Co., Findlay, Ohio

Buyers' Guide

MACHINERY—Acid Making and Handling
Atlanta Utility Works, The, East Point, Ga.
Chemical Construction Corp., New York City
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Stedman Foundry and Machine Co., Aurora, Ind.

MACHINERY—Acidulating
Chemical Construction Corp., New York City

MACHINERY—Grinding and Pulverizing
Atlanta Utility Works, The, East Point, Ga.
Bradley Pulverizer Co., Allentown, Pa.
Poulsen Co., Los Angeles, Calif.
Stedman Foundry and Machine Co., Aurora, Ind.

MACHINERY—Material Handling
Atlanta Utility Works, The, East Point, Ga.
Clark Equipt. Co., Construction Mach. Div., Benton Harbor, Mich.
Hayward Company, The, New York City
Hough, The Frank G. Co., Libertyville, Ill.
Lessman Mfg. Co., Des Moines, Ia.
Link-Belt Co., Chicago, Ill.
Poulsen Co., Los Angeles, Calif.
Power-Curve Conveyor Co., Denver, Colo.
Stedman Foundry and Machine Co., Aurora, Ind.

MACHINERY—Mixing, Screening and Bagging
Atlanta Utility Works, The, East Point, Ga.
Poulsen Co., Los Angeles, Calif.
Stedman Foundry and Machine Co., Aurora, Ind.

MACHINERY—Power Transmission
Link-Belt Co., Chicago, Ill.
Stedman Foundry and Machine Co., Aurora, Ind.

MACHINERY
Superphosphate Manufacturing
Atlanta Utility Works, The, East Point, Ga.
Link-Belt Co., Chicago, Ill.
Stedman Foundry and Machine Co., Aurora, Ind.

MAGNESIUM SULFATE
Berkshire Chemicals, New York City

MANGANESE SULFATE
Tennessee Corp., Atlanta, Ga.

MANURE SALTS
Potash Co. of America, Washington, D. C.

MINOR ELEMENTS
Tennessee Corporation, Atlanta, Ga.

MIXERS
Atlanta Utility Works, The, East Point, Ga.
Stedman Foundry and Machine Co., Aurora, Ind.

NITRATE OF POTASH
Berkshire Chemicals, New York City

NITRATE OF SODA
American Agricultural Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, N. Y. C.
Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C.
International Min. & Chem. Corp., Chicago, Ill.
Woodward & Dickerson, Inc., Philadelphia, Pa.

NITROGEN SOLUTIONS
Commercial Solvents Corporation, New York City
Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C.
Lion Oil Company, El Dorado, Ark.
Phillips Chemical Co., Bartlesville, Okla.
Spencer Chemical Co., Kansas City, Mo.

NITROGEN MATERIALS—Organic
American Agricultual Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
International Min. & Chem. Corp., Chicago, Ill.
Jackle, Frank R., New York City
Woodward & Dickerson, Inc., Philadelphia, Pa.

NOZZLES—Spray
Monarch Mfg. Works, Philadelphia, Pa.
Spraying Systems Co., Bellwood, Ill.

PARATHION
Ashcraft-Wilkinson Co., Atlanta, Ga.
Monsanto Chemical Co., St. Louis, Mo.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.

PENTACHLOROPHENOL
Monsanto Chemical Co., St. Louis, Mo.

PHOSPHATE ROCK
American Agricultural Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
International Min. & Chem. Corp., Chicago, Ill.
Woodward & Dickerson, Inc., Philadelphia, Pa.

PHOSPHORIC ACID
American Agricultural Chemical Co., N. Y. C.
Monsanto Chemical Co., St. Louis, Mo.

PLANT CONSTRUCTION—Fertilizer and Acid
Atlanta Utility Works, The, East Point, Ga.
Chemical Construction Corp., New York City
General Industrial Development Corp., N. Y. C.
Link-Belt Co., Chicago, Ill.
Monsanto Chemical Co., St. Louis, Mo.
Stedman Foundry and Machine Co., Aurora, Ind.
Titlestad Corporation Nicolay, New York City

POTASH—Muriate
American Potash & Chemical Corp., N. Y. C.
Ashcraft-Wilkinson Co., (Duval Potash) Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
Duval Sulphur & Potash Co., Houston, Tex.
International Min. & Chem. Corp., Chicago, Ill.
Potash Co. of America, Washington, D. C.
Southwest Potash Corporation, New York City
United States Potash Co., N. Y. C.

POTASH—Sulfate
American Potash & Chemical Corp., N. Y. C.
Baker & Bro., H. J., New York City
International Min. & Chem. Corp., Chicago, Ill.
Potash Co. of America, Washington, D. C.

POTASSIUM PHOSPHATE
Monsanto Chemical Co., St. Louis, Mo.

PRINTING PRESSES—Bag
Schmutz Mfg. Co., Louisville, Ky.

PYROPHYLLITE
Ashcraft-Wilkinson Co., Atlanta, Ga.
Pioneer Pyrophyllite Producers, Beverly Hills, Calif.

REPAIR PARTS AND CASTINGS
Atlanta Utility Works, The, East Point, Ga.
Stedman Foundry and Machine Co., Aurora, Ind.

SCALES—Including Automatic Baggers
Atlanta Utility Works, The, East Point, Ga.
Stedman Foundry and Machine Co., Aurora, Ind.

SCREENS
Atlanta Utility Works, The, East Point, Ga.
Stedman Foundry and Machine Co., Aurora, Ind.

SPRAYS
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Spraying Systems Co., Bellwood, Ill.

STORAGE BUILDINGS
Butler Manufacturing Co., Kansas City, Mo.
Marietta Concrete Corporation, Marietta, Ohio

SULFATE OF AMMONIA
American Agricultural Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
Jackle, Frank R., New York City
Lion Oil Co., El Dorado, Ark.
Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C.
Phillips Chemical Co., Bartlesville, Okla.
Woodward & Dickerson, Inc., Philadelphia, Pa.

SULFATE OF POTASH—MAGNESIA
International Min. & Chem. Corp., Chicago, Ill.

SULFUR
Ashcraft-Wilkinson Co., Atlanta, Ga.
Texas Gulf Sulphur Co., New York City
Woodward & Dickerson, Inc., Philadelphia, Pa.

SULFUR—Dusting & Spraying
Ashcraft-Wilkinson Co., Atlanta, Ga.
U. S. Phosphoric Products Div., Tennessee Corp., Tampa, Fla.

SULFURIC ACID
American Agricultural Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, N. Y. C.
International Min. & Chem. Corp., Chicago, Ill.
Lion Oil Company, El Dorado, Ark.
Monsanto Chemical Co., St. Louis, Mo.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

SUPERPHOSPHATE
American Agricultural Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
Davison Chemical Corporation, Baltimore, Md.
International Min. & Chem. Corp., Chicago, Ill.
Jackle, Frank R., New York City
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Woodward & Dickerson, Inc., Philadelphia, Pa.

SUPERPHOSPHATE—Concentrated
Armour Fertilizer Works, Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
International Min. & Chem. Corp., Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Woodward & Dickerson, Inc., Philadelphia, Pa.

TALC
Ashcraft-Wilkinson Co., Atlanta, Ga.

TANKAGE
American Agricultural Chemical Co., N. Y. C.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, N. Y. C.
International Min. & Chem. Corp., Chicago, Ill.
Jackle, Frank R., New York City
Woodward & Dickerson, Inc., Philadelphia, Pa.

TEPP
Monsanto Chemical Co., St. Louis, Mo.

TOXAPHENE
Ashcraft-Wilkinson Co., Atlanta, Ga.
Pittsburgh Coke & Chem. Co., Agr., Chem. Div., Pittsburgh, Pa.

2, 4-D
Diamond Alkali Co., Newark, N. J.
Monsanto Chemical Co., St. Louis, Mo.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.

2, 4, 5-T
Diamond Alkali Co., Newark, N. J.
Monsanto Chemical Co., St. Louis, Mo.
Pittsburgh Coke & Chem. Co., Agr. Chem. Div., Pittsburgh, Pa.

UREA & UREA PRODUCTS
Baker & Bro., H. J., New York City
Bradley & Baker, N. Y. C.
Grand River Chem. Div., Deere & Co., Tulsa, Okla.
Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C

VALVES
Atlanta Utility Works, The, East Point, Ga.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

ZINC SULFATE
Tennessee Corp., Atlanta, Ga.

Graduation . . .

It's graduation time on campuses all over the nation! You hear the college songs—see lines of bright faces set off with the traditional caps and gowns. These young people are thinking about the future—jobs and marriage.

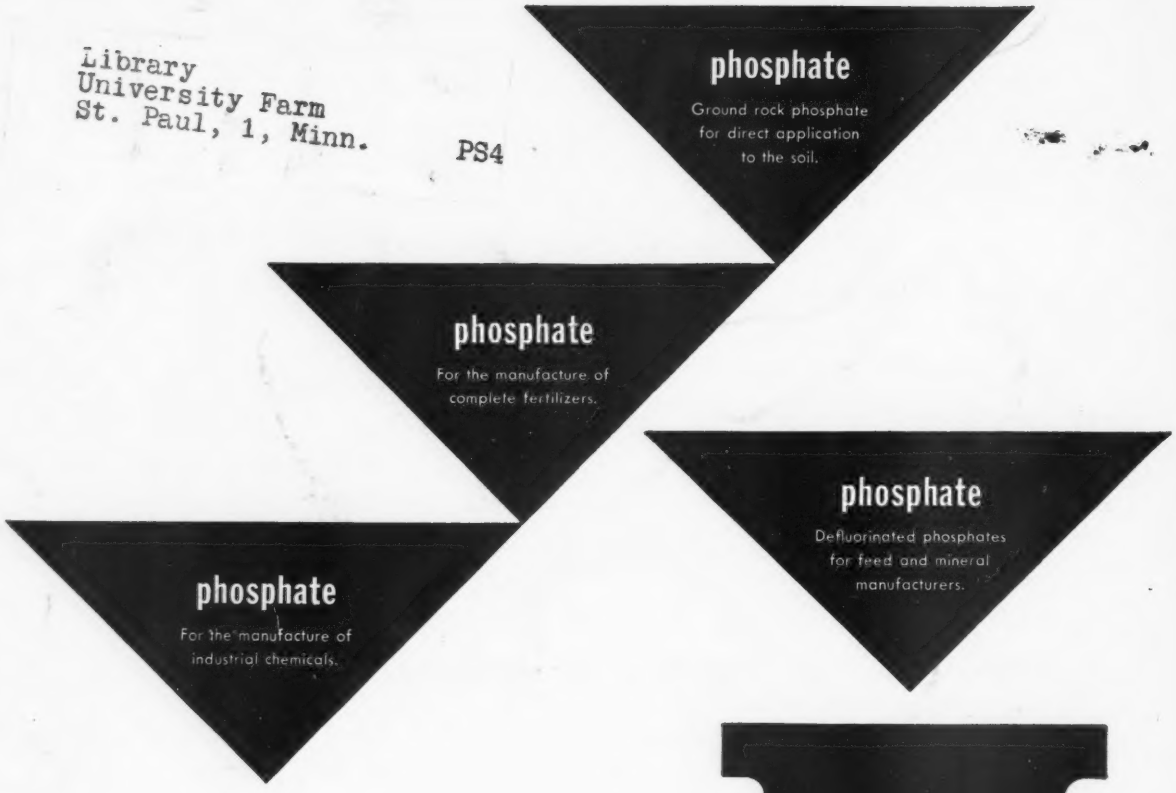
We're glad to note that many business leaders are accepting invitations to make "the graduation address." The inspiration these leaders impart to graduates often makes lasting impressions. It's a tribute to both the man and his business to receive this honor. It's citizenship in action.

—"The Indian"

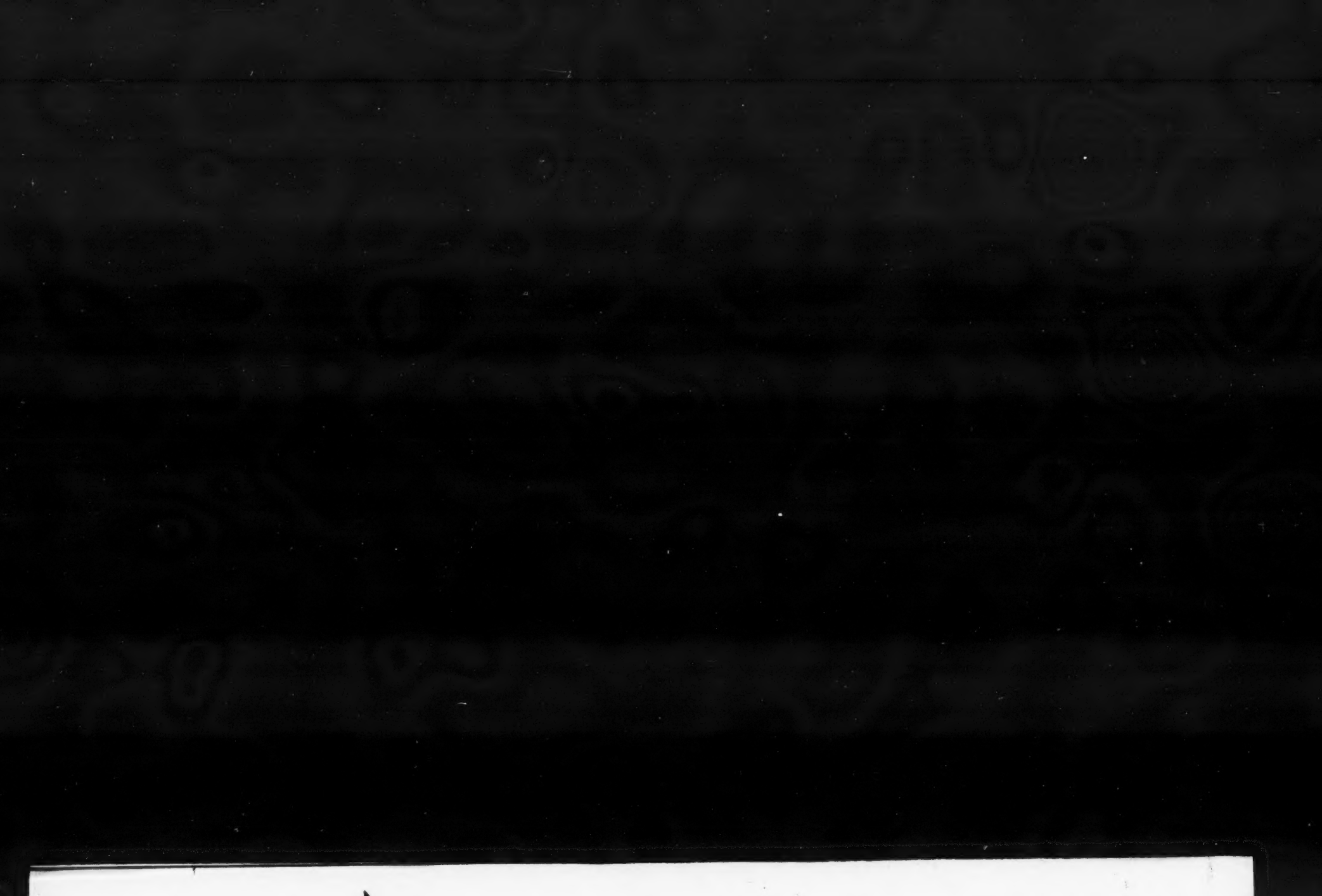
POTASH COMPANY of AMERICA
Carlsbad, New Mexico

General Sales Office....1625 Eye Street, N.W., Washington, D. C.
Midwestern Sales Office....First National Bank Bldg., Peoria, Ill.
Southern Sales Office....Candler Building, Atlanta, Ga

Library
University Farm
St. Paul, 1, Minn.
PS4


phosphate
Ground rock phosphate for direct application to the soil.
phosphate
For the manufacture of complete fertilizers.
phosphate
Defluorinated phosphates for feed and mineral manufacturers.
phosphate
For the manufacture of industrial chemicals.

International phosphates for industry and ag

Phosphate Mines and Plants in Florida at Noralyn, Bonnie, Peace Valley, Achan, Mulberry; in Tennessee at Mt. Pleasant and Wales; in Mississippi at Tupelo.

phosphate division **INTERNATIONAL MINERALS & CHEMICAL CORPORATION**
General Offices: 20 North Wacker Drive, Chicago 6